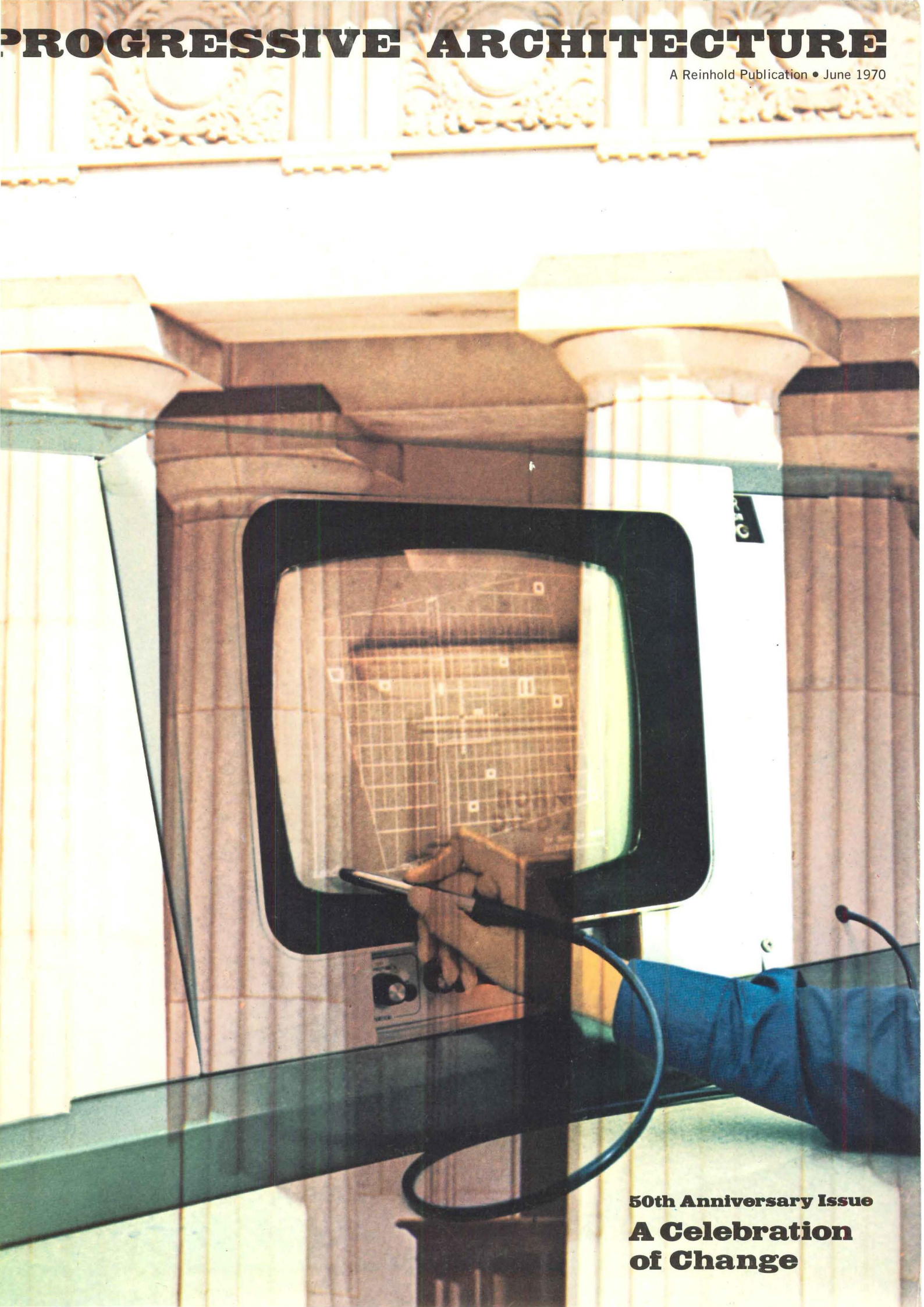
PROGRESSIVE ARCHITECTURE

A Reinhold Publication • June 1970

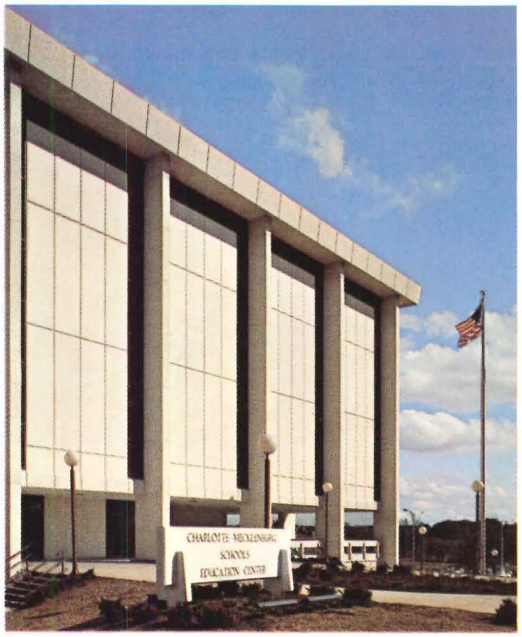


50th Anniversary Issue

A Celebration of Change



The modular design of the exterior is picked up on the inside by customizing with standard flooring materials: Imperial Modern Excelon Tile and Excelon Feature Strips.



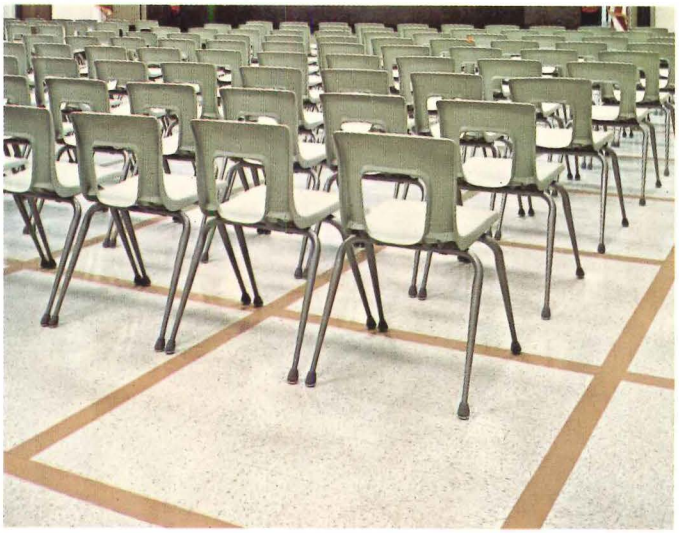
This crisp, modern facade belongs to the Education Center for the Charlotte-Mecklenburg Schools in Charlotte, North Carolina.

ARCHITECTS: Charles Morrison Grier & Associates, Inc., 904 South King's Drive, Charlotte, North Carolina.
INTERIOR DESIGNER: Mrs. Sue Goodman of the Grier firm.
CONTRACTOR: James E. Cox Construction Inc., P.O. Box 11528, Charlotte, North Carolina.
FLOORING CONTRACTOR: Carter Floors, 189 Trade Street, Matthews, North Carolina.

Imperial Modern Excelon (vinyl-asbestos) does a double job for this Charlotte facility. It provides an economical, long-wearing floor. And with 28,000 lineal feet of 3″ feature strip, it color-coordinates the files, furniture, and accessories.



The Imperial Modern Excelon used here is ⅛″ gauge. Depending on service and budget requirements, 3/32″ gauge is available as an alternate. In both cases, the contemporary, mottled pattern goes all the way through the tile's thickness, so the look lasts the life of the floor.



The planned floor.

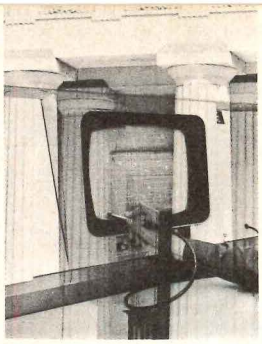
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custom appearance within a controlled budget.
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Armstrong

The next time you're planning a floor, contact your Armstrong Representative. He can show you the largest, most comprehensive line of resilient flooring available. And he'll help make sure that all your flooring requirements are met precisely. Call him. Or write Armstrong, 506 Watson St., Lancaster, Pa. 17604.



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Cover: Photo of Low Library at Columbia University, photographed by Lloyd Greenberg, superimposed over photo of the Coordinated Science Laboratory at the University of Illinois, photographed by Jack Gladden.

P/A THIS MONTH

PROGRESSIVE ARCHITECTURE® JUNE 1970

50 Years of Change

P/A introduces this anniversary issue, which takes stock of itself and of the profession after 50 years of publication. As the decades advance, change, which has grown increasingly radical, is explored in seven articles — from P/A's own business of architectural journalism to hope for change from today's dangerously imbalanced ecology. 130



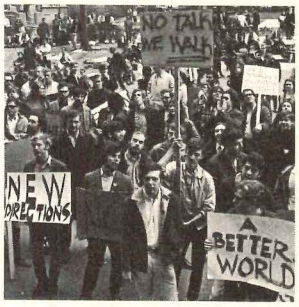
Architectural Journalism Analyzed

A critical examination of architectural journalism in America concentrates on the fifty years since *Pencil Points,* the original *Progressive Architecture,* was born. The journals are seen not only as a reflection of change within the profession, but as a vital force shaping and defining its direction. 132



Beaux-Arts to Burned Arts

A short introduction to the forces that shaped architectural education in America leads to an exposition of the last 50 years — from the domination of Beaux-Arts classicism to the challenge of education today. 140



Revolutionary Scenario for an Architect's Education

With the focus on the new student, Michael Brill discusses the revolutionary mood in the schools today and how future practitioners may be leading the profession to an important new awareness of its purposes. 148



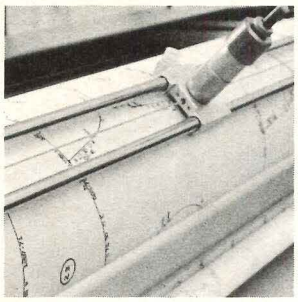
From the Classes to the Masses

P/A compares high and low fashions through five decades of interior design. Beginning in the twenties when the rich collected antiques while others bought Grand Rapids' repros, the revolution is traced through the sixties, when knockdown versions became almost instantly available to all. 150



From Product to Process

From architectural product to environmental process in 50 years, P/A discusses the new dimensions of modern architecture. Three projects illustrate the discussion: Open Line City by Cesar Pelli, Design Partner of Gruen Associates; a pizza palace by Lawrence Brown; and the car wash as environmental form, by Arthur Golding and Doug Meyer. **156**



From Pencil Points to Computer Graphics

For centuries the pencil has been the architect's principal design tool, and drawings his principal communications device. Today, computer design tools exist that can respond with great delicacy to the sensitive interaction between hand and tool. Murray Milne, a computer graphics expert, traces the latest advances in electronic design. **168**



The World: Love It or Leave It

As the earth's ecological condition reaches crisis proportions, the current "spring cleaning" will not be enough to reverse the trend. Proposed cures now viewed as idealistic must become reality. P/A describes some radical proposals that *are* within the realm of present technical capacities, and reports what happens when "acceptable" measures are attempted. **178**

Departments

Special Book Review

The 50th anniversary of the founding of the Bauhaus has been widely celebrated. Contributing is a particularly weighty volume of of photographs and documents, reviewed by F. Lanier Graham, Associate Curator of Architecture and Design at the Museum of Modern Art. **189**

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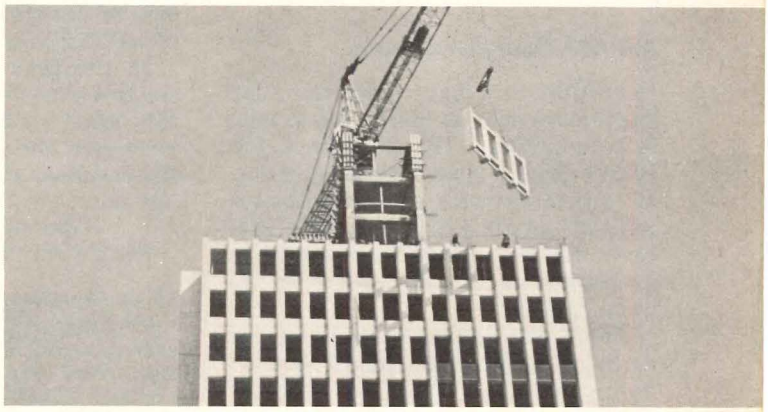
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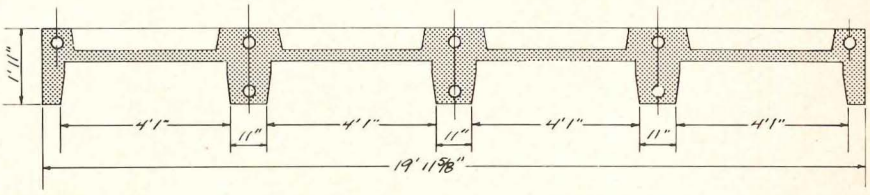
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Robert Rosenwasser, New York City, New York

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YOUR POINT OF VIEW

Forestry

Dear Forest Wilson: Dear forest and trees and brooks and animals are dying.

Your magazine becoming progressively architectural and irrelevant.

Please cancel the remainder of my subscription and send the refund to: Ecology Action, Box 9334, Berkeley, Cal.

Chip Lord
Berkeley, Cal.

(We have sent you a free copy of this issue of P/A. We hope you'll read "The World: Love It or Leave It" (p. 178), also "The Phenomenon of Earth Day" (p. 43). It may be irrelevant, but our Forrest begs this spelling. Ed.)

AIA-ABA Courtroom Study

Dear Editor: I have just read your April issue and am distressed to note in your article "The Chicken in the Plastic Booth" that Progressive Architecture has been misled by the erroneous report which appeared earlier in the *New York Times* and *Time* magazine, on the AIA-ABA courtroom study.

There were glaring errors in the earlier reports, and I feel it is most unfortunate that these are repeated in this article. For example:

(1) The courtroom study did not get underway after the Chicago Seven Trials. It has absolutely nothing to do with the trials. The study was announced March 21, 1968, after 10 years of preliminary work by ABA and AIA members.

(2) The study is not being conducted by seven members of the AIA and seven members of the ABA. The study is being done by the University of Michigan's School of Architecture and Law under ABA-AIA sponsorship and Ford Foundation funding.

(3) The study is not examining the possibility of installing soundproof shields, etc. In response to questions arising out of recent disruptive court proceedings as to how the problem could be tackled from a design standpoint, a comment was made by one of those involved that it could be done with shields, curtains, closed-circuit TV, etc. In so doing, it was not intended that this should be done, nor that the study was involved in this area. The University of Michigan group feels that the device which gives the impression of excessive force and repression may be even more damaging to the system of administration of justice than the disruption itself.

(4) As indicated above, the study has not come up with two possibilities as your article states. There is no Committee on Design of Courtrooms and Courtroom Facilities, but there is a joint ABA-AIA task force.

(5) The purpose of the study was covered in our news release of March 21, 1968. It describes the project as "A two-year study to establish standards for modernizing the physical facilities of courts and court related agencies."

The P/A article, as well as the earlier *New York Times* and *Time* magazine articles, have been discussed with those in charge of the study. They join with us in our concern about the perpetuation of these rumors. They have made it clear that if asked they will be happy to cooperate with news media in providing full details concerning the true nature of the study, which will be completed this summer.

In the meantime, we respectfully suggest that you consider publishing this letter so that your readers will know how the initial error in reporting occurred and the facts of the situation.

Rex Whitaker Allen, President
The American Institute of Architects
San Francisco, Cal.

(P/A has checked with our N.Y. Times source, who advised us that he was unable to secure information for publication from the AIA. Therefore, the reporter obtained his facts from U.S. District Judge Frank Murray of Boston, who heads the ABA committee studying recent courtroom disturbances, and from Judge William S. Fort of the Oregon Court of Appeals, chairman of the joint committee between the AIA and the ABA which he calls the Committee on Design of Courtrooms and Courtroom Appeals. We are sorry the AIA disagrees with the information given to the press by their colleagues in the law profession. We also regret that the first sentence of the P/A article was misleading in that it implied these courtroom studies were only begun after the recent disruptive trials. Ed.)

Mythmanagement

Dear Editor: This letter is to comment on several myths which are implicitly presented as facts in many of your recent articles.

- Myth Number One — Advances in building technology and research to that end (such as Breakthrough) can solve the housing crisis.
- Fact — The main factors increasing housing costs and thus diminishing the supply are land costs and financing costs. A secondary factor is the social process whereby people move into what is then adequate housing, convert it into slums and finally into abandoned buildings, fit only to be torn down. These are the problems that must be faced squarely and solved, and they are not technological problems. A comparison of construction costs all over the country shows that nonunion conventional construction is cheaper than any type of factory built construction (discounting government subsidies).
- Myth Number Two — It is desirable that a community make its own planning decisions concerning new housing (or other type) projects to be built in their area.
- Fact — First of all, this presupposes a viable community, able to speak for itself in a knowledgeable fashion. A most unlikely thing to find. Those groups that most need adequate housing also have the least ability and knowledge with which to make these decisions. Can one seriously expect people who are unable to manage their own family affairs, unable (in some instances) to support themselves, and have no knowledge or concept of money management to make large scale planning decisions? It is absurd. It is almost as absurd to expect students to do this for them. As in any other undertaking, what is needed is skill, experience and knowledge. To think otherwise is a delusion. It is also irrelevant whether or not the planners' skin color matches that of the group to be housed.
- Myth Number Three — Building Codes are obstructing progress.
- Fact — If you look at much of the shabby construction being built today, which does not meet current codes, it would appear that what is needed are even more stringent codes and stricter enforcement of existing codes. To weaken codes will only encourage production of slums and substandard housing.

Sy Richards AIA
Atlanta, Ga.

Thank You Note

Dear Editor: Your article (P/A, April 1970, p. 94) gives us a timely and much needed ego trip. Thanks.

Richard Saul Wurman
Philadelphia, Pa.

(The Murphy Levy Wurman office burned about a month before this letter was sent. P/A is happy to have brought a bit of balm. Ed.)

Correction: Credit for the condominiums at Sea Ranch (P/A, March 1970, p. 101) is Moore Lyndon Turnbull Whitaker.



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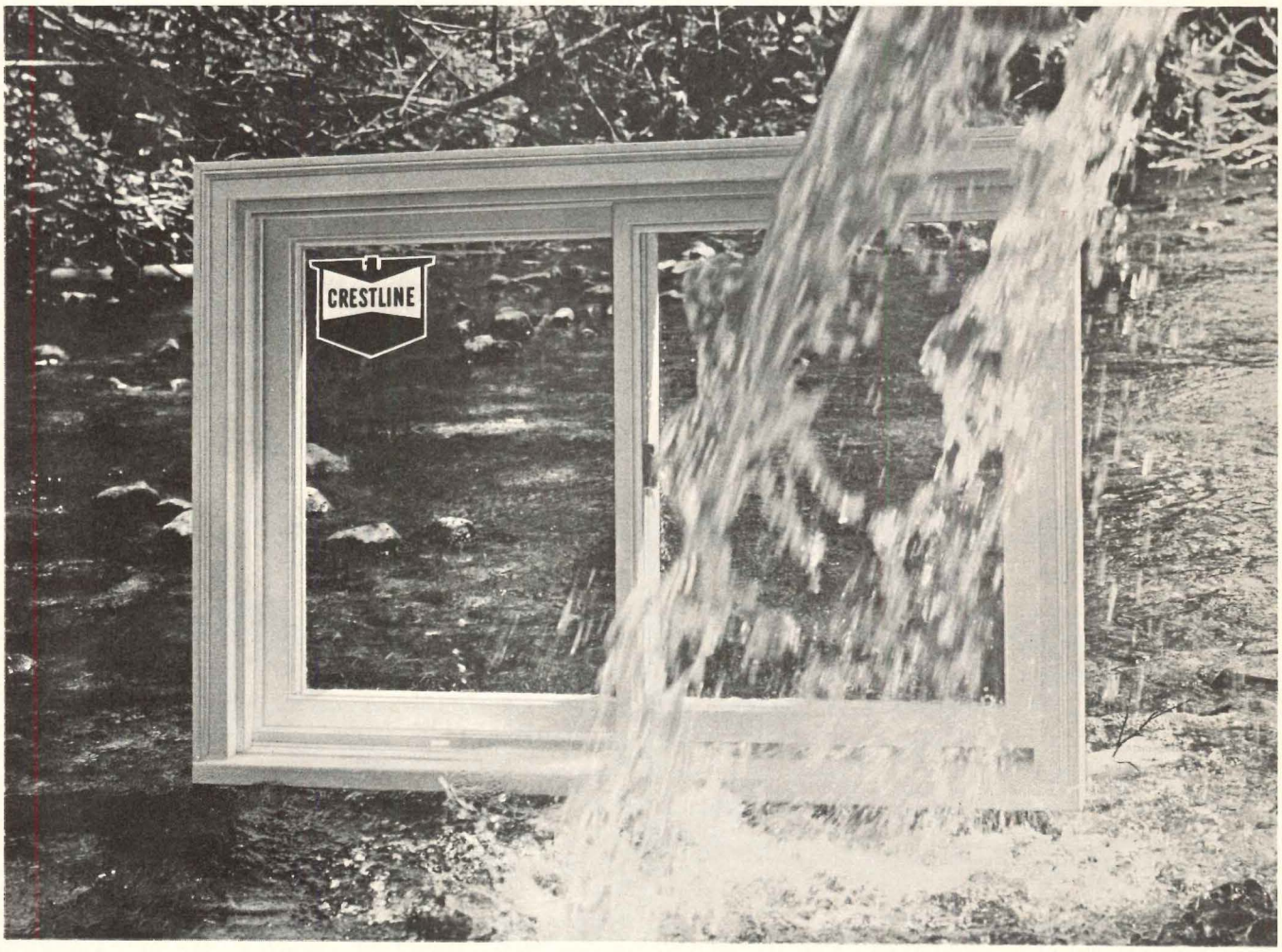
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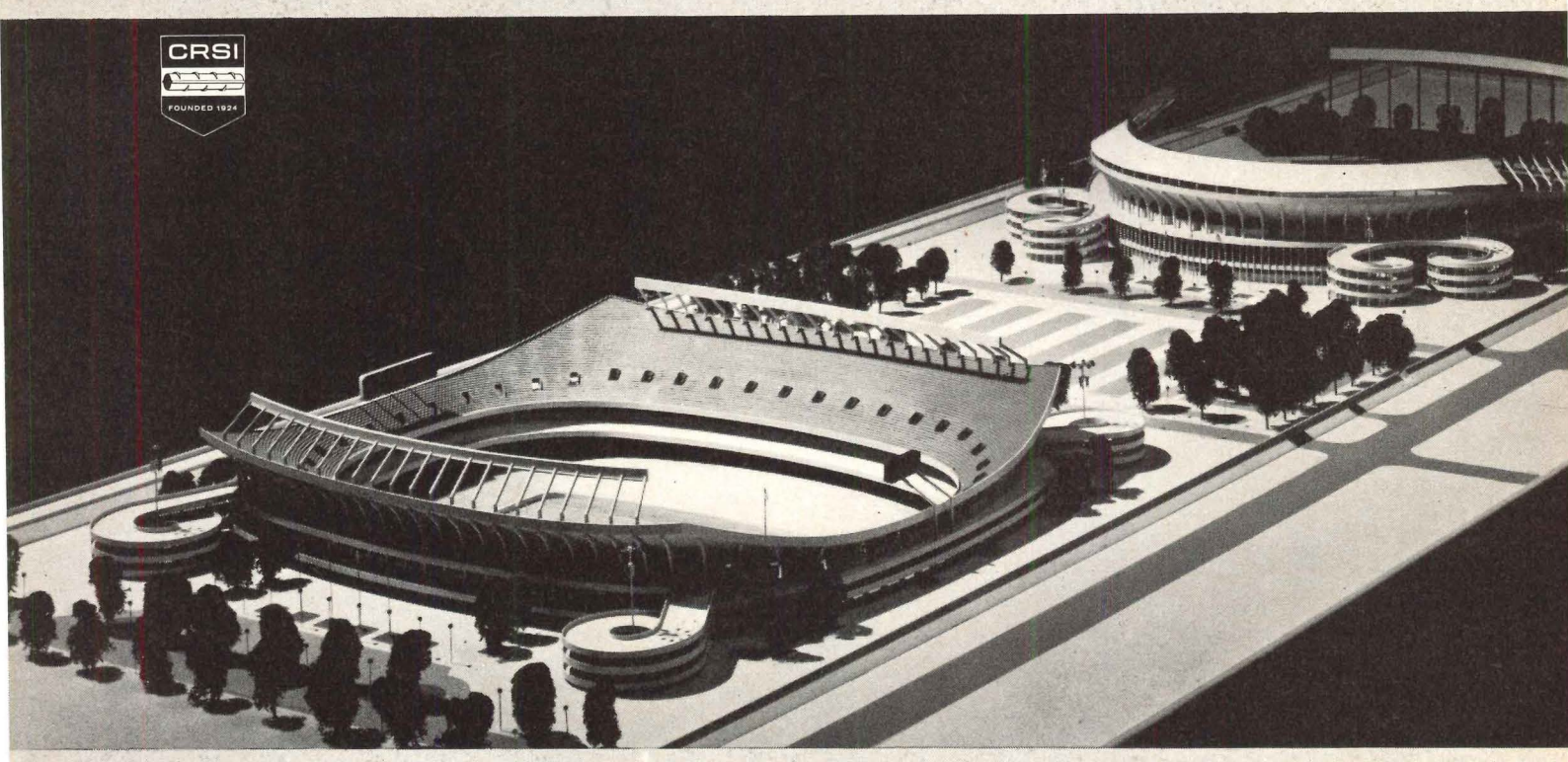
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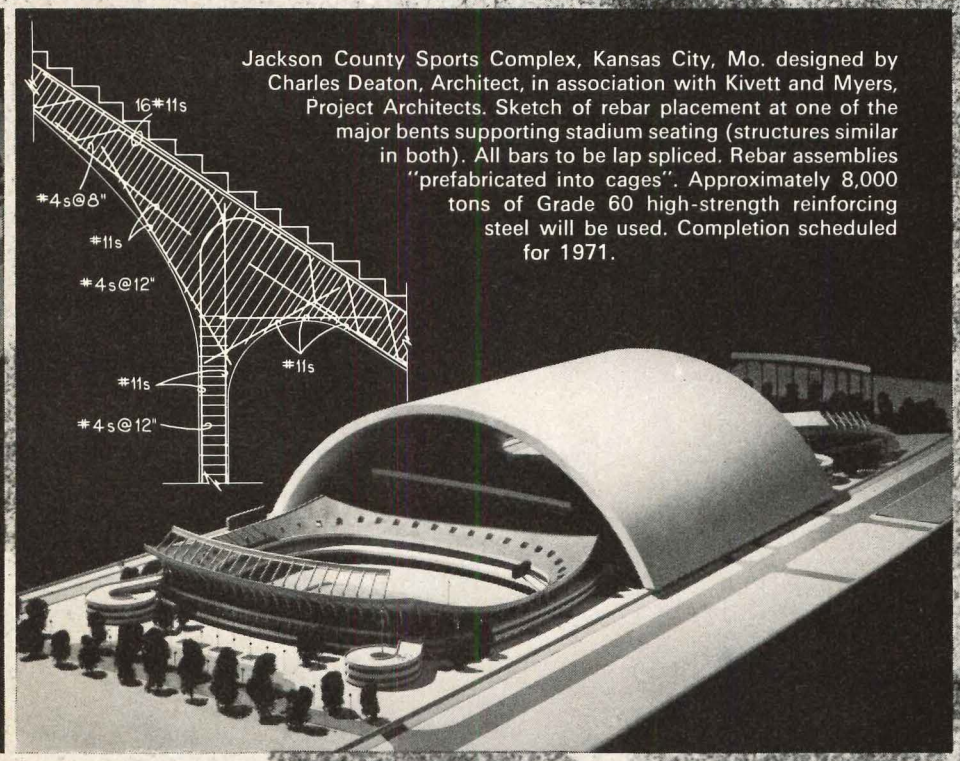


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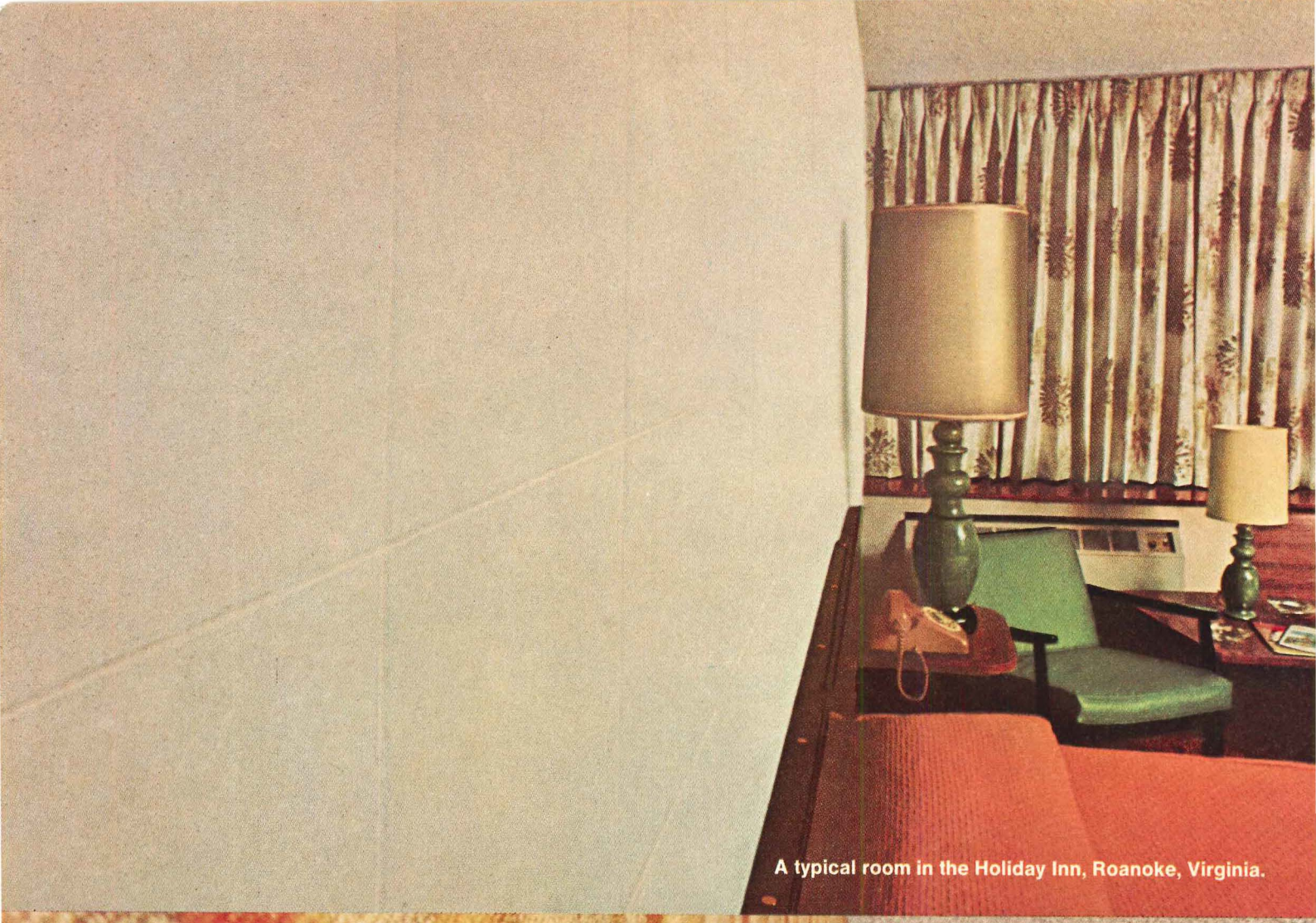


Jackson County Sports Complex, Kansas City, Mo. designed by Charles Deaton, Architect, in association with Kivett and Myers, Project Architects. Sketch of rebar placement at one of the major bents supporting stadium seating (structures similar in both). All bars to be lap spliced. Rebar assemblies "prefabricated into cages". Approximately 8,000 tons of Grade 60 high-strength reinforcing steel will be used. Completion scheduled for 1971.

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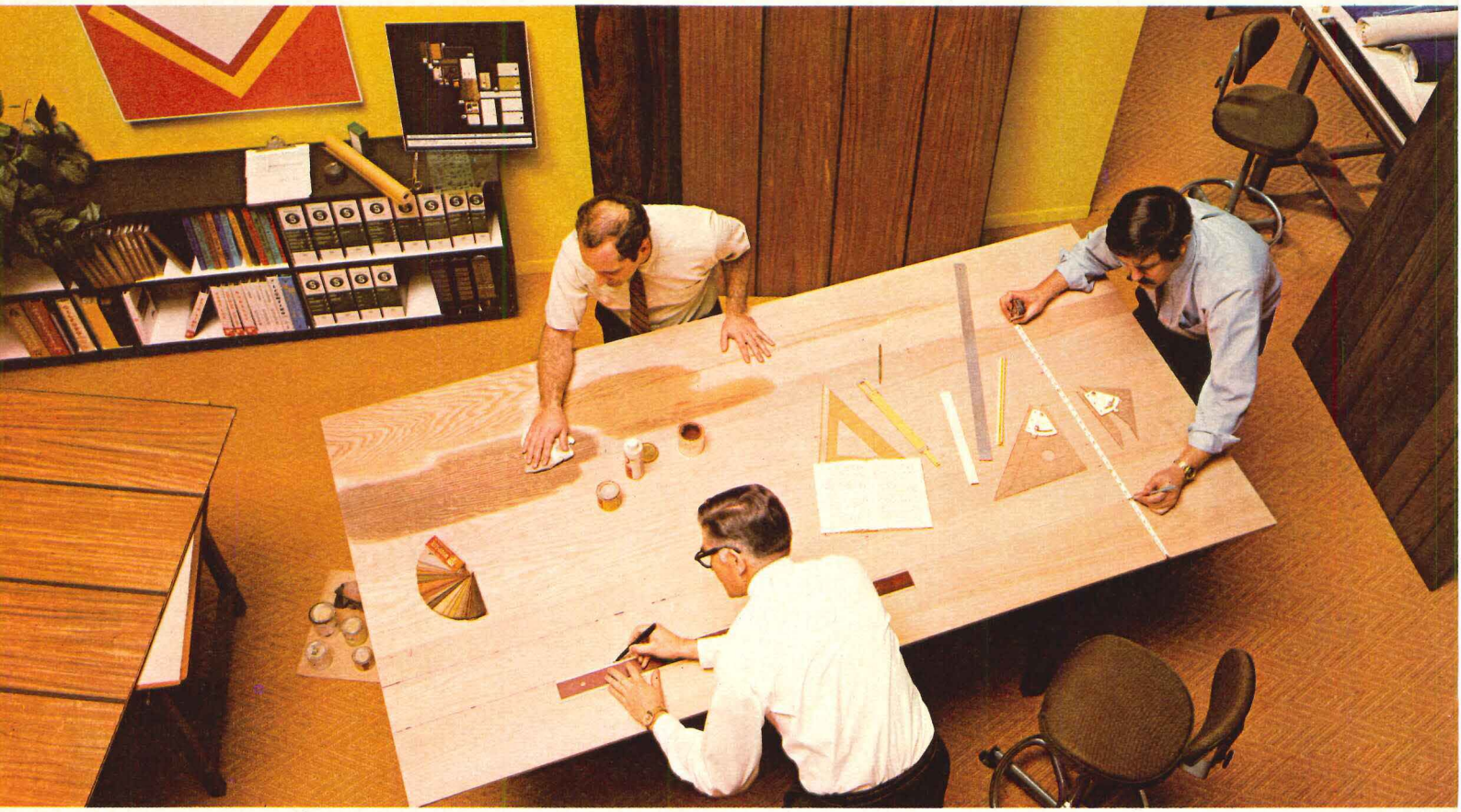
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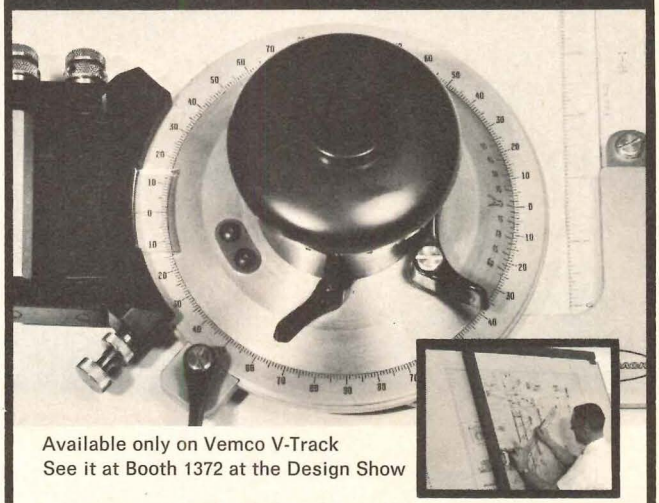
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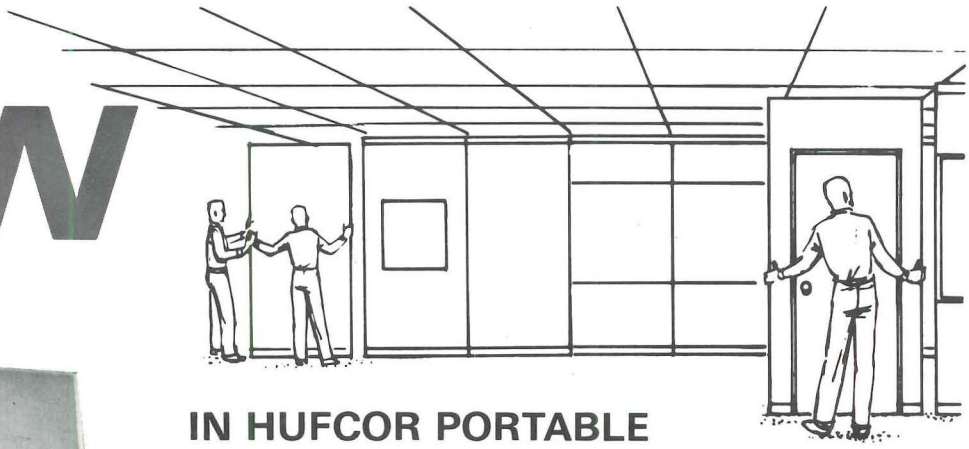
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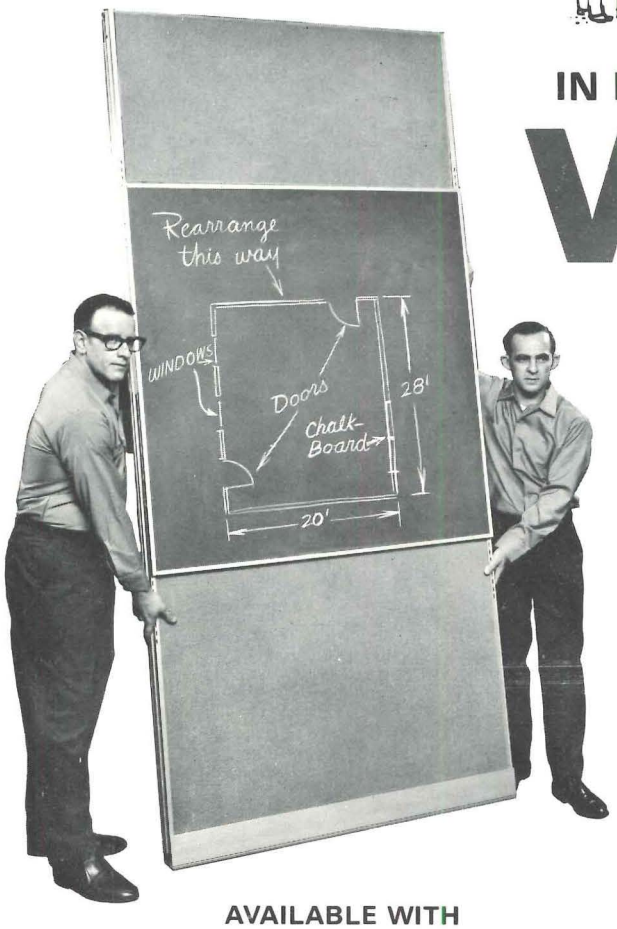
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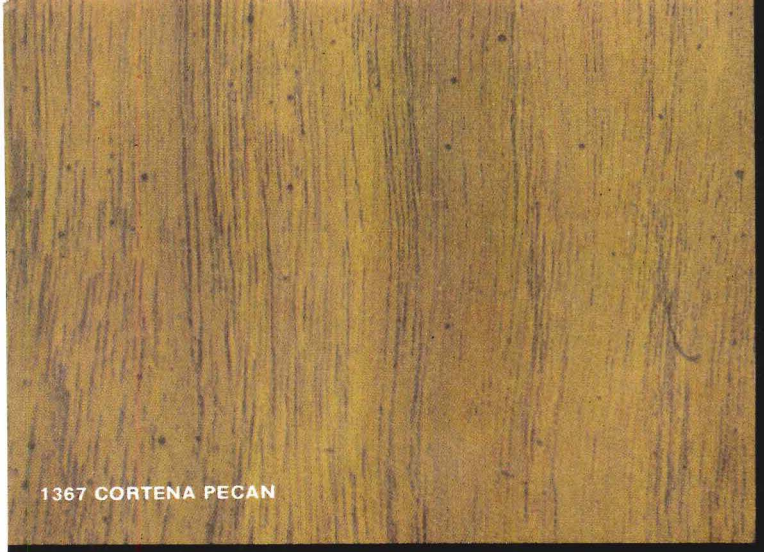
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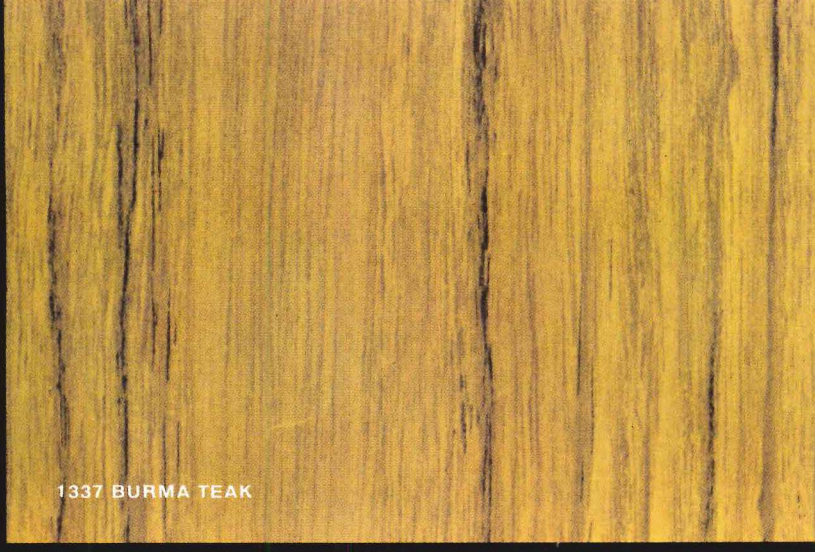
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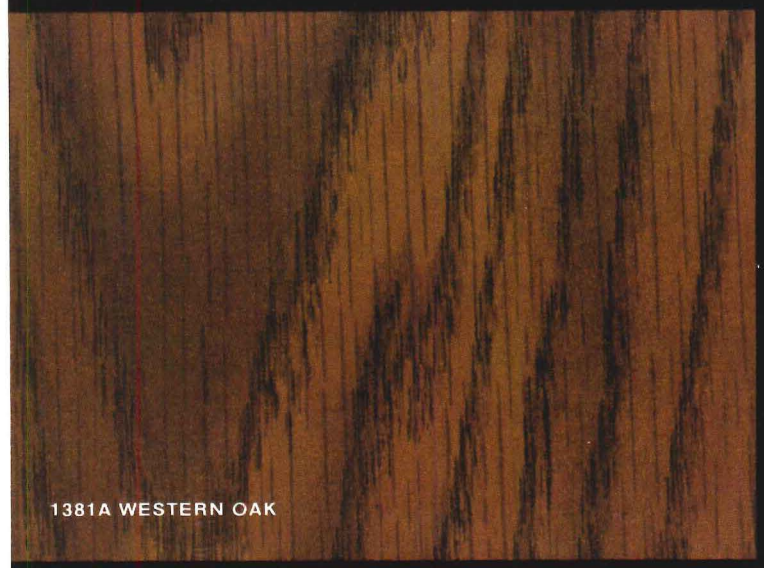
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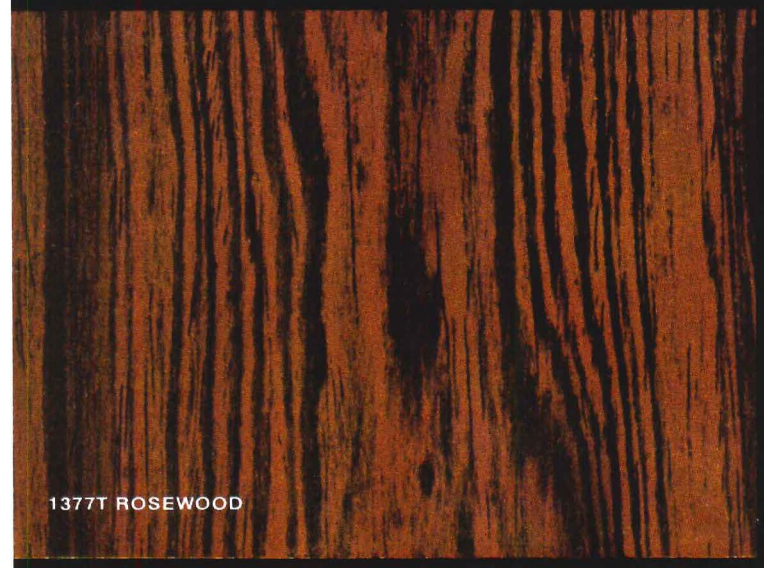
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1367 CORTENA PECAN


1337 BURMA TEAK

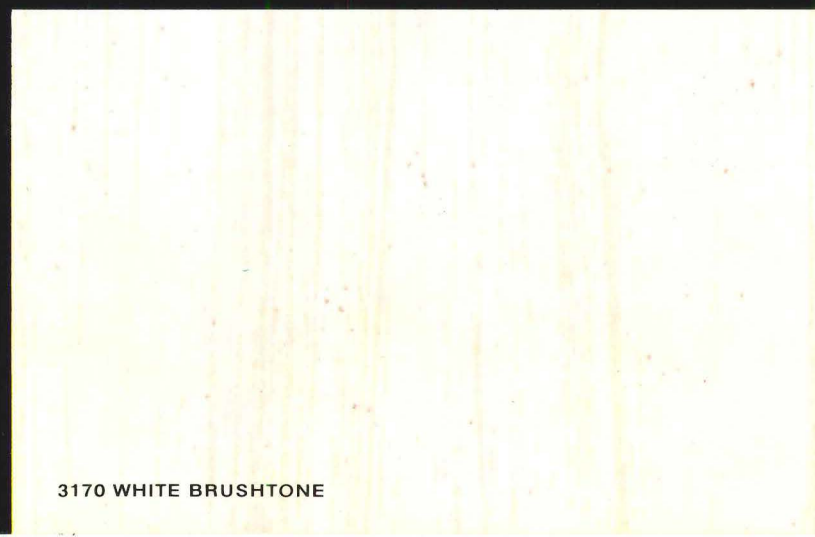

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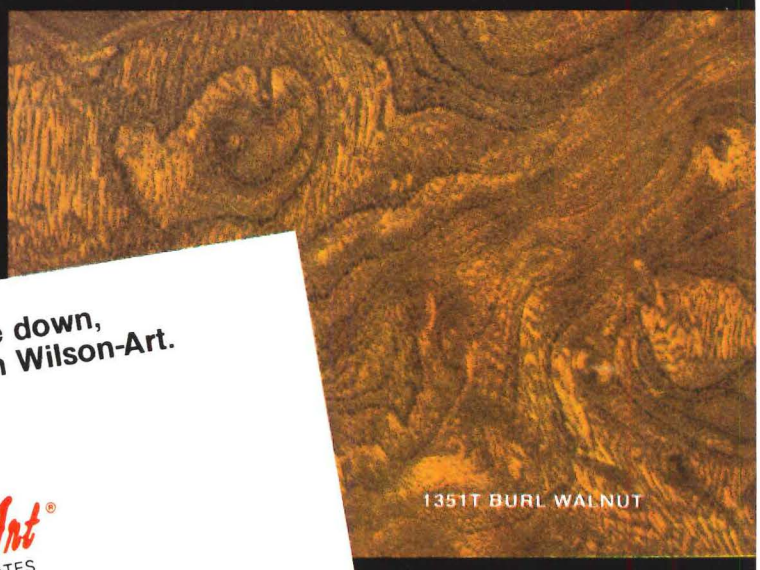
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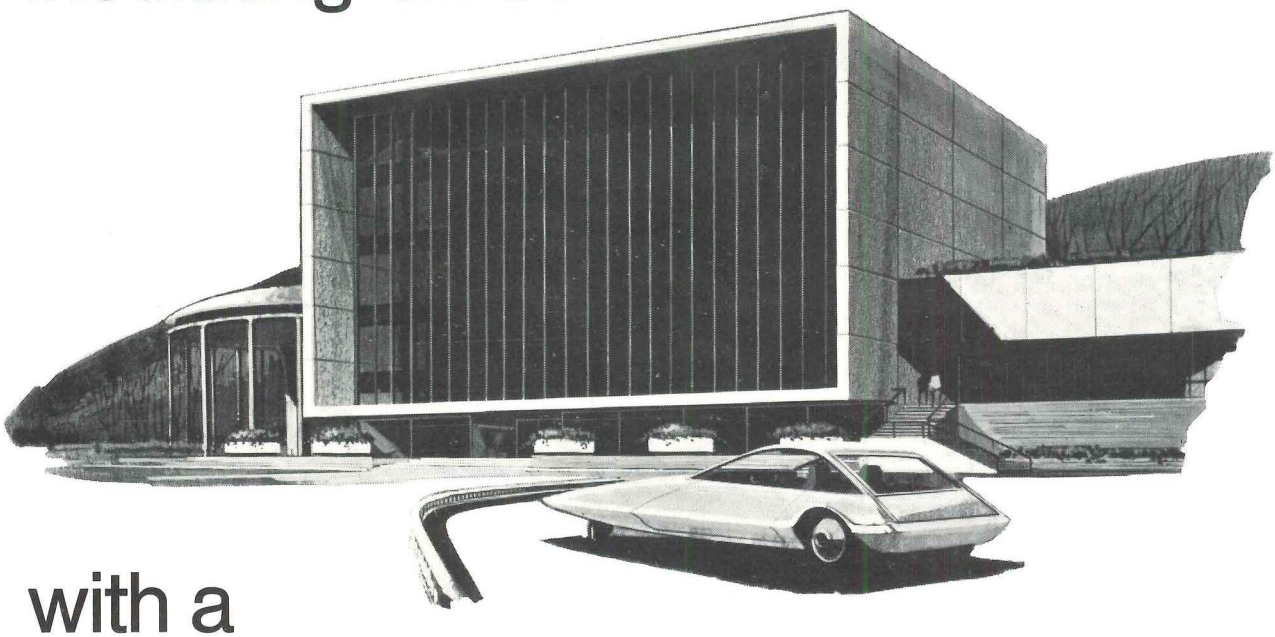

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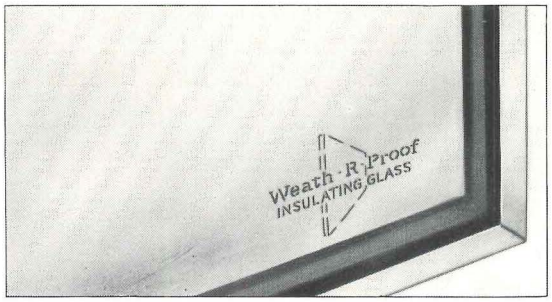
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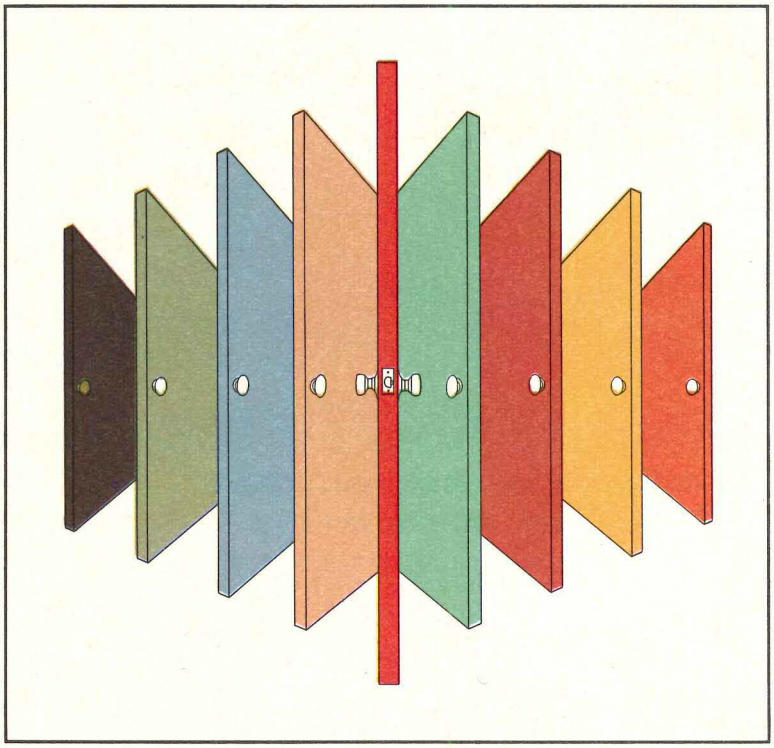
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The colorful doors



Now you can order Steelcraft doors and frames in color. Ten different colors for interior and exterior use. Ten different ways to eliminate a real headache, too: the problem of specifying paint and depending upon on-the-site paint jobs. Besides this, with Steelcraft's "colorful doors" you can count on consistent color and quality throughout. (If you order twenty or thirty doors and frames in sunset orange, sunset orange is what you'll get.) Quality is controlled and labor costs are cut considerably.

Here's something to remember, too: the doors and frames are sealed in plastic covers for protection. When the building is actually ready for occupancy, just take off the protective covers. There you are . . . shiny and new, and already painted.

If you'd like to know more about Steelcraft's "colorful doors," see your Steelcraft distributor or write to Steelcraft, 9017 Blue Ash Road, Cincinnati, Ohio 45242 U.S.A.

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The no-show carpet.

Even 30 million people at McCarran International Airport can't make a carpet of Antron® look worn and dirty.

At Du Pont, we were sure Antron* nylon was the ultimate carpet fiber for any heavy traffic use. But we were absolutely positive after we got the following report from Bonded Services, the maintenance firm at McCarran International Airport in Las Vegas:

"The carpeting is wearing like iron. One area has been subjected to approximately 30,000,000 traffics and it has yet to show a single sign of wear.

" 'Antron' has proved highly resistant to the appearance of soil. The actual cost of maintaining the carpeting versus tile has been at least 40% saving in labor and material. At this date, we don't anticipate replacing the carpet. It might even double our original five-year wear prediction."

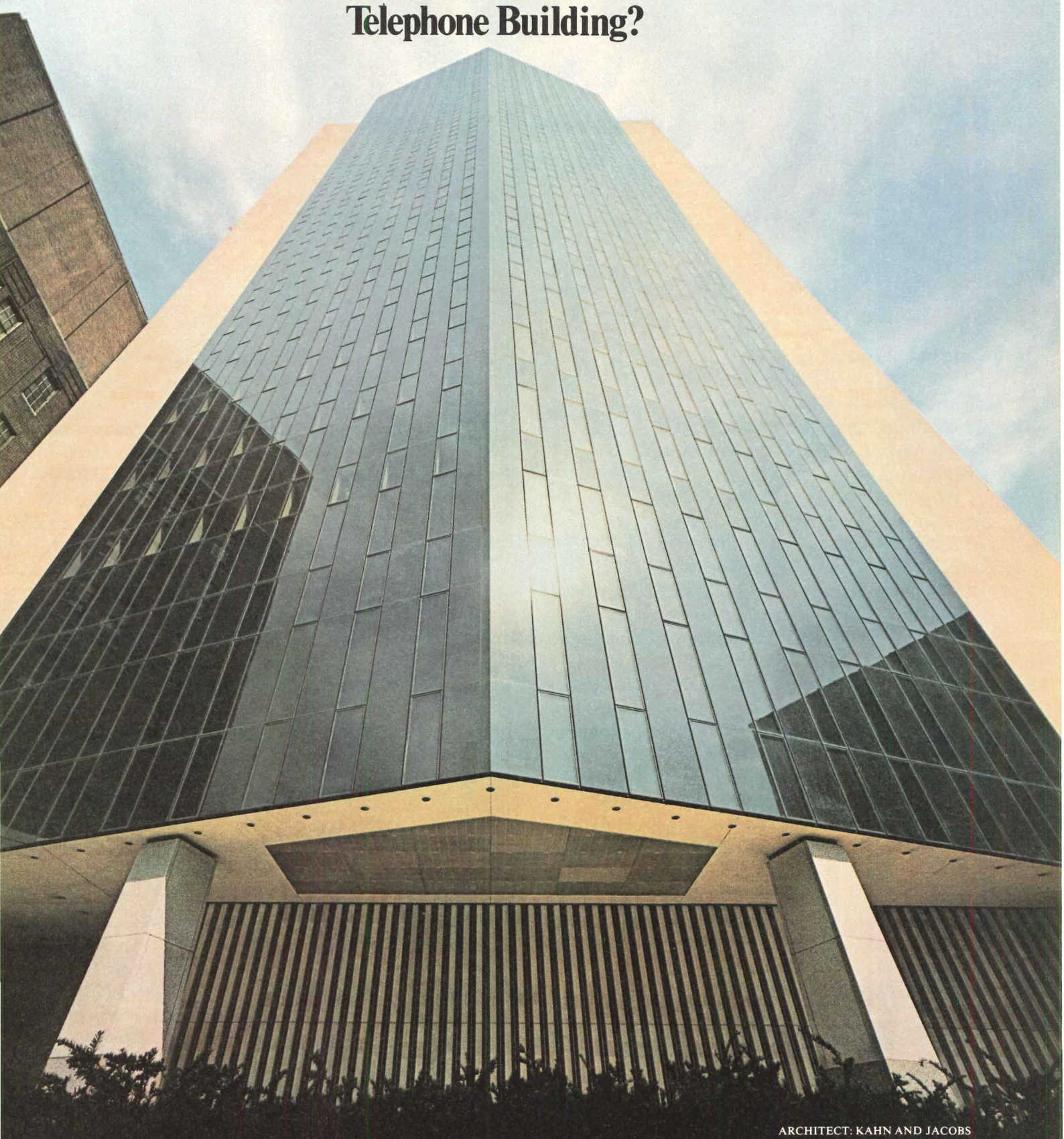
Can you have any doubts after this kind of rave? Wherever you're considering carpet, consider "Antron". No matter how light, how bright the color, no matter how hard the wear, a carpet with pile of "Antron" will keep looking cleaner, fresher, newer longer than you ever thought possible. If you have any questions, get in touch with us. Du Pont, Contract Carpet Specialist, 308 E. Lancaster Ave., Wynnewood, Pa. 19096. We're convinced. Let us convince you.

*Du Pont registered trademark. Du Pont makes fibers, not carpets.

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On Readers' Service Card, Circle No. 338

What's new about the new New York Telephone Building?



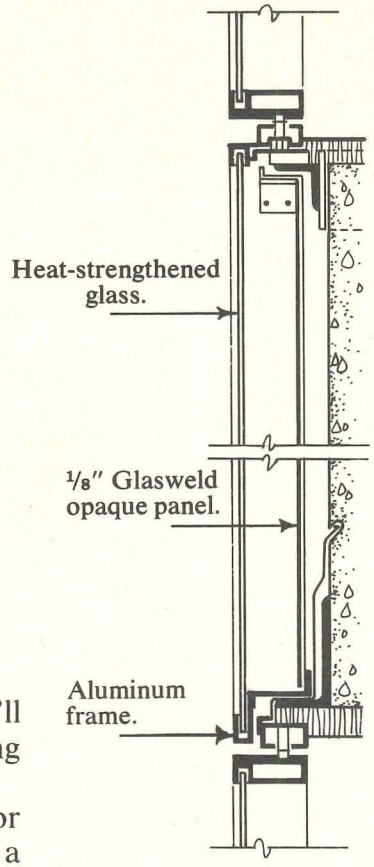
ARCHITECT: KAHN AND JACOBS

Among recent additions to Manhattan's skyline, one of architectural distinction is the 24-story building of the New York Telephone Company.

One of its unique features is the way in which black Glasweld® was incorporated in its window wall design. Glasweld was used as an opaque panel behind glass in the spandrel area. (See installation diagram on the next page.)

Why put Glasweld *behind* glass when it retains its look of newness for years on exteriors with no protective cover at all? Because it enabled the architects to emphasize the verticality of window treatment—an element of design that greatly enhances the building's striking appearance.

This unique use of Glasweld exemplifies the versatility of the material or how—in the hands of innovative architects—it can be used to achieve distinctive effects.



Section through Exterior Wall, New York Telephone Building.

Colorful, durable, versatile Glasweld® for skyscrapers or low-rise buildings.

Look almost anywhere today. You'll see evidence of the ever-widening acceptance of Glasweld.

Why the upsurge in its uses? For one reason, Glasweld comes in a choice of 26 colors that retain their integrity for years on exteriors and in interiors. Regardless of the most rigorous climatic or environmental conditions.

In fact, Glasweld installed on buildings more than ten years ago still retains its original condition—a testimonial to the material's long "life expectancy." Indeed, the surface of Glasweld is comparable in durability to the best grades of exterior porcelain enamel and ceramic tile.



But durability and looks aren't everything. Equally important, Glasweld is easily and quickly installed. It's also simple to cut and drill. Only ordinary power tools are needed.

Glasweld is economical, too, when it comes to maintenance. It requires no painting or refinishing for at least 15 years. Cleans easily, too.

It keeps a visually flat appearance when properly installed according to U.S. Plywood instructions. Rustproof, incombustible (U.L. fire hazard classification 0-0-0), waterproof and virtually impervious to stains.

Glasweld is also noted for its immense versatility. It has been widely used for curtain wall panel facings, fascias, soffits, opaque window inserts, balcony panels, and interior linings. Moreover, it is an excellent material for use in rooms—such as laboratories—that must be kept dust-free. Since Glasweld is virtually free from static buildup, dust will not readily cling to its surface.

New textured Glasweld.

In addition to standard Glasweld in a range of 23 colors, U.S. Plywood, recognizing that architects have many uses for textured materials, now offers new sand-surfaced Glasweld with a distinct textured appearance. The new textured designs of Glasweld include Rhine Sand, Moselle Sand and Champagne White Sand. (As shown at left.) And the aggregate is adhered with an inorganic bond.



These new textured designs retain all the qualities for which standard Glasweld is noted: durability, decorative value, and economy.

Plain or textured, Glasweld is a product of unusual practicality in terms of initial cost, installation savings, long-time service and durability for either new construction or modernization.

For further information on Glasweld, call the Architects Service Representative at your nearest U.S. Plywood office or write:

U.S. Plywood

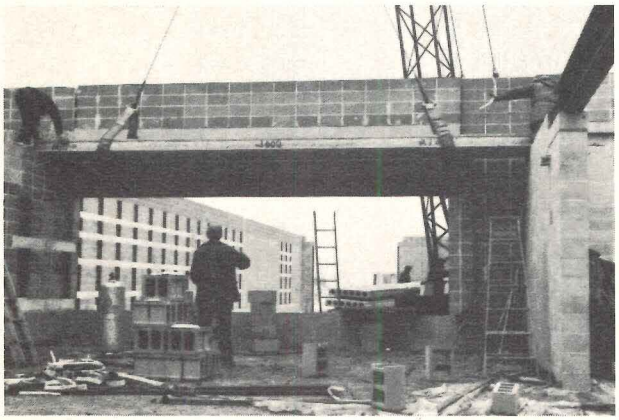
A Division of U.S. Plywood-Champion Papers Inc.
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Saving $3,000 a year on insurance with an all-concrete building.



Compliments from visitors to the Carleton plant are practically a weekly occurrence. All-concrete plant has been praised both for its beauty and its "solid functional look that makes it look like a manufacturing plant."

Exterior walls are decorative "splyt face units," with regular concrete masonry for interior walls. The roof contains 25,685 sq. ft. hollow core slab. Roof units are 8" x 12" thick, 4' wide, and range in length up to 50'6".



Carleton Screw Products' new plant has better than twice the floor area of their old rented facility. Yet the fire and liability insurance for the new building and contents is little more than half the old premium—which covered contents only. "The added construction cost over the cheapest alternative should be paid for in about four to five years," says Carleton's Vice President, R. B. Dunsworth.

It's easy to see that Carleton got a building as beautiful as the savings on insurance by choosing concrete. And in addition to its fire-resistant quality, concrete provides the durability so necessary in manufacturing plants.

Design possibilities with concrete are practically unlimited in churches, schools, apartments, and civic buildings as well as industrial plants.

In this building, as in so many others around the country, Lehigh Cements are used by the producers of the concrete masonry units and the prestressed hollow core roof units in their manufacturing processes. Lehigh Portland Cement Company, Allentown, Pa.

Owner: Carleton Screw Products Company, Minneapolis, Minn.
Architect: Bryce Bell, Minneapolis, Minn.
Designer: Kaye Westerlund, Minneapolis, Minn.
Engineer: James Swensen, Minneapolis, Minn.
General Contractor: C.O. Field Co., Minneapolis, Minn.
Mason Contractor: Donald R. Frantz, Minneapolis, Minn.
Ready-Mixed Concrete: Ready Mixed Concrete Co., Minneapolis, Minn.
Prestressed Concrete Hollow Core Slabs: Bladholm Bros., Osseo, Minn.
Concrete Masonry Units: Chas. M. Freidheim Company, St. Louis Park, Minn.
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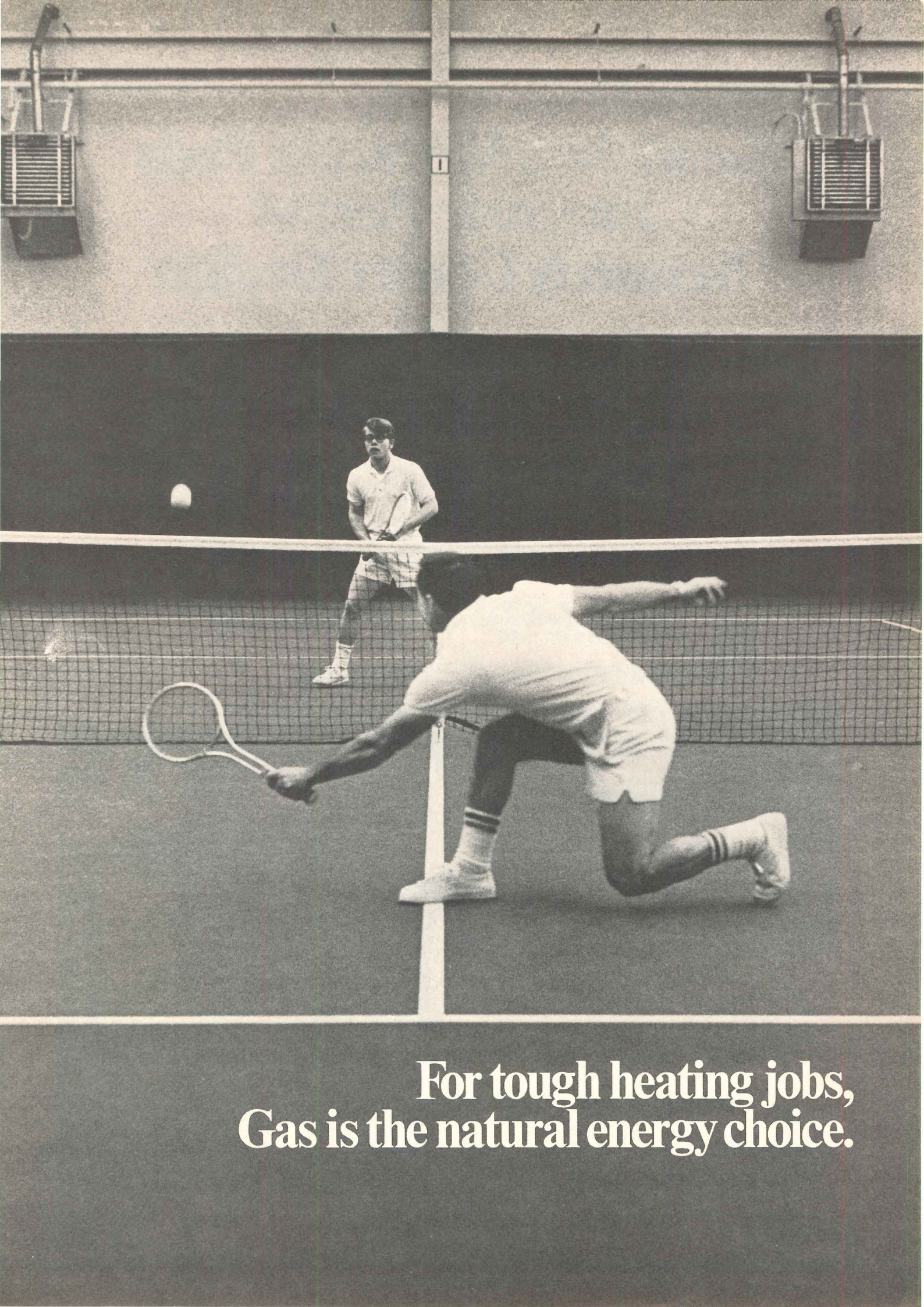
That's why Gas infra-red is economical. And maintenance costs are low too. Because there are no moving parts.

Whether you're heating a playing floor or a plant floor, Gas infra-red can work for you. Ask your local Gas Company Sales Engineer about it. Or write to the Bettcher Manufacturing Corporation, 16000 Commerce Park Drive, Cleveland, Ohio 44142.



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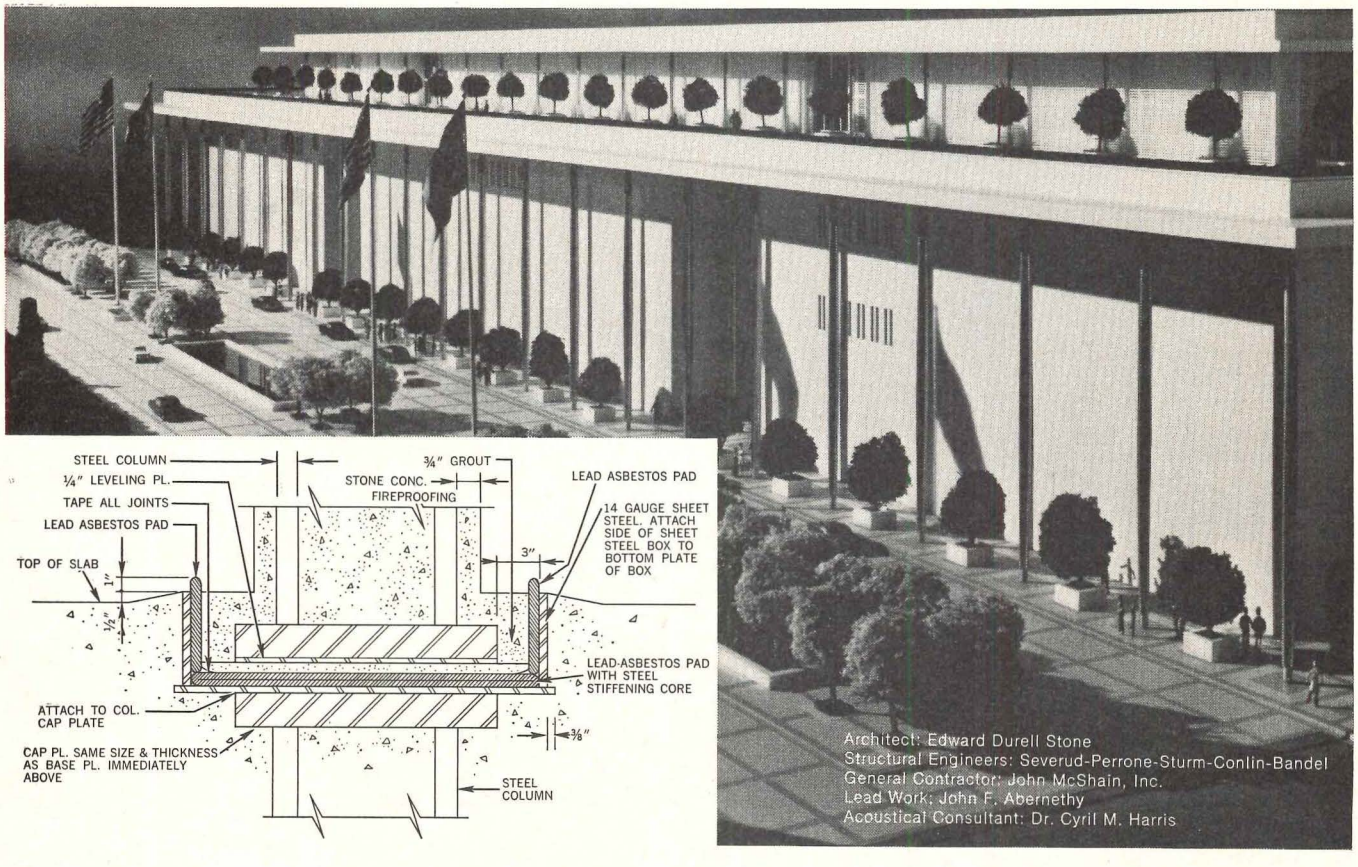
Lead Anti-Vibration Pads Intrinsic Part of Kennedy Center Design

Theatre and music buffs happily anticipate next year's opening of the John F. Kennedy Center for the Performing Arts in the nation's capital. A rarity, indeed, the single building that comprises the Center will contain a concert hall, opera house and two theatres on top of three parking levels. The arrangement permits simultaneous performances that will be thoroughly protected from vibration.

Each hall rests on lead-asbestos anti-vibration pads that completely isolate it from vibration generated in the adjacent halls as well as the Rock Creek and Potomac Parkway that passes beneath the building's cantilevered terrace. It took 82 pads in all to get the desired results, a total of 1,000 square feet in area and 10 tons of lead. Pads are standard 1-inch thick construction, consisting of an envelope of 8-lb. lead enclosing two layers of ⅜-inch thick asbestos roll fire felt, with a 12-ga. steel stiffening sheet in center to facilitate handling.

For additional information on the architectural uses of lead for isolation of vibration write to Lead Industries Association, Inc., Dept. MM-6, 292 Madison Avenue, New York, N.Y. 10017.

Lead Industries Association, Inc.



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Designers-Engineers: Walter Kidde Constructors, Inc. of New York City



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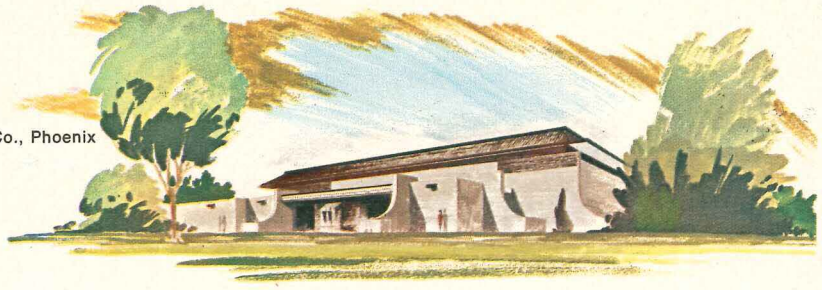
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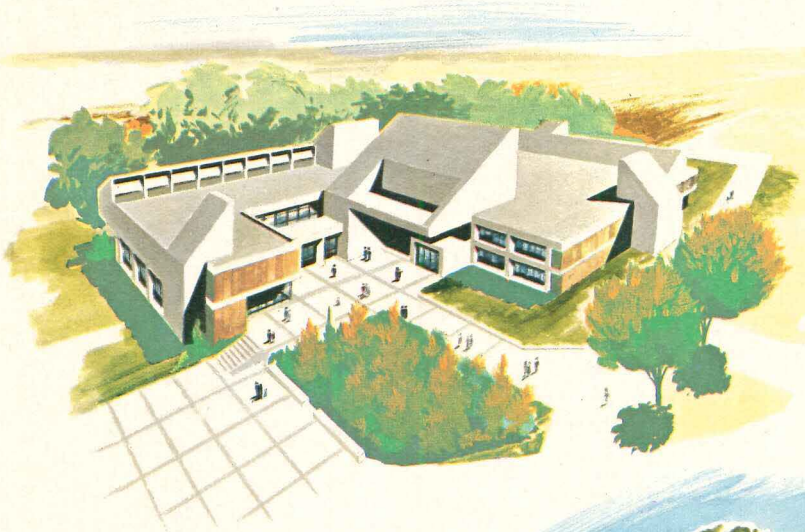
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Phoenix College Gymnasium — Phoenix, Arizona
Owner: Maricopa County Junior College District
Architect: Haver, Nunn & Jensen, Phoenix
Engineer: Foltz, Hamlyn & Adam, Phoenix
Prestressed Concrete Fabricator: Arizona Sand & Rock Co., Phoenix
Contractor: Redden Construction Company, Phoenix
Prestressed Strand: CF&I Lok-Stress





considered Lok-Stress® prestressed strand?

Library Building — Hudson Valley Community College, Troy, New York
Owner: County of Renssalaer, N. Y.
Architect/Engineer: Cadman & Droste, Troy, N. Y.
Prestressed Concrete Fabricator: Hudson River Concrete Products Corporation, Ravena, N. Y.
Contractor: Rosch Brothers, Inc., Albany, N. Y.
Prestressed Strand: CF&I Lok-Stress



Women's Building — Tennessee State Fairgrounds, Nashville, Tennessee
Owner: Tennessee State Fair
Architect/Engineer: Reese, Jackson & Collier, Nashville
Prestressed Concrete Fabricator: Breeko Industries, Nashville
Contractor: Kennon Construction Company, Nashville
Prestressed Strand: CF&I Lok-Stress

Lok-Stress prestressed strand is a new cost-saving engineering tool . . . an improved 270 Grade (ASTM A 416-68) Strand. Minimum yield strength is 90% of ultimate strength. Develops lower stress losses due to relaxation of strand.

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Advantages include positive control of camber, predictable performance of prestressed concrete members, increased load capacity, increased span, increased ultimate capacity.

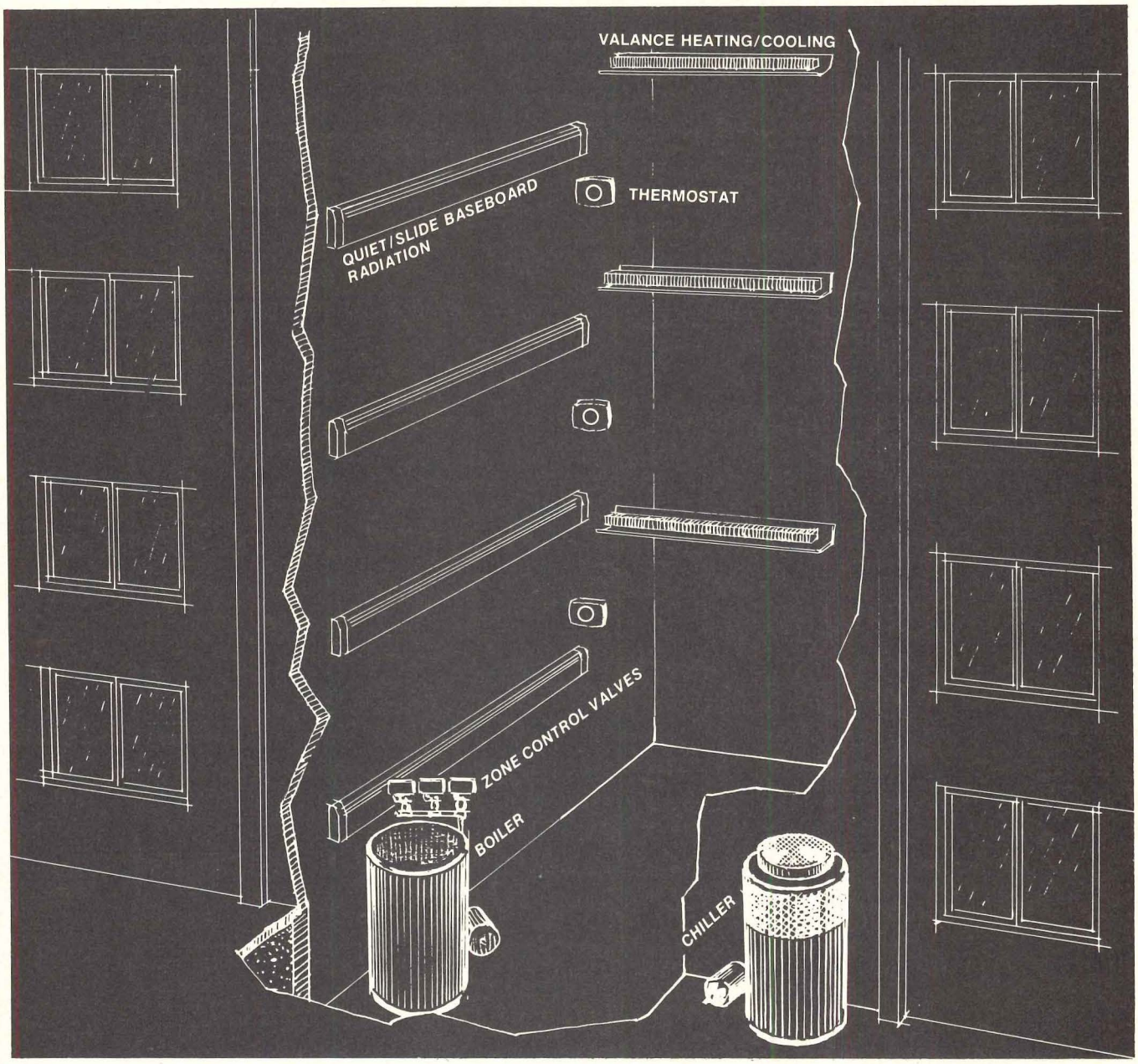
Call or write for additional information. We're the nation's largest manufacturer of prestressing strand. Our engineering staff will supply applicable design data or arrange a direct consultation, if you wish.

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Sales Offices Nationwide.
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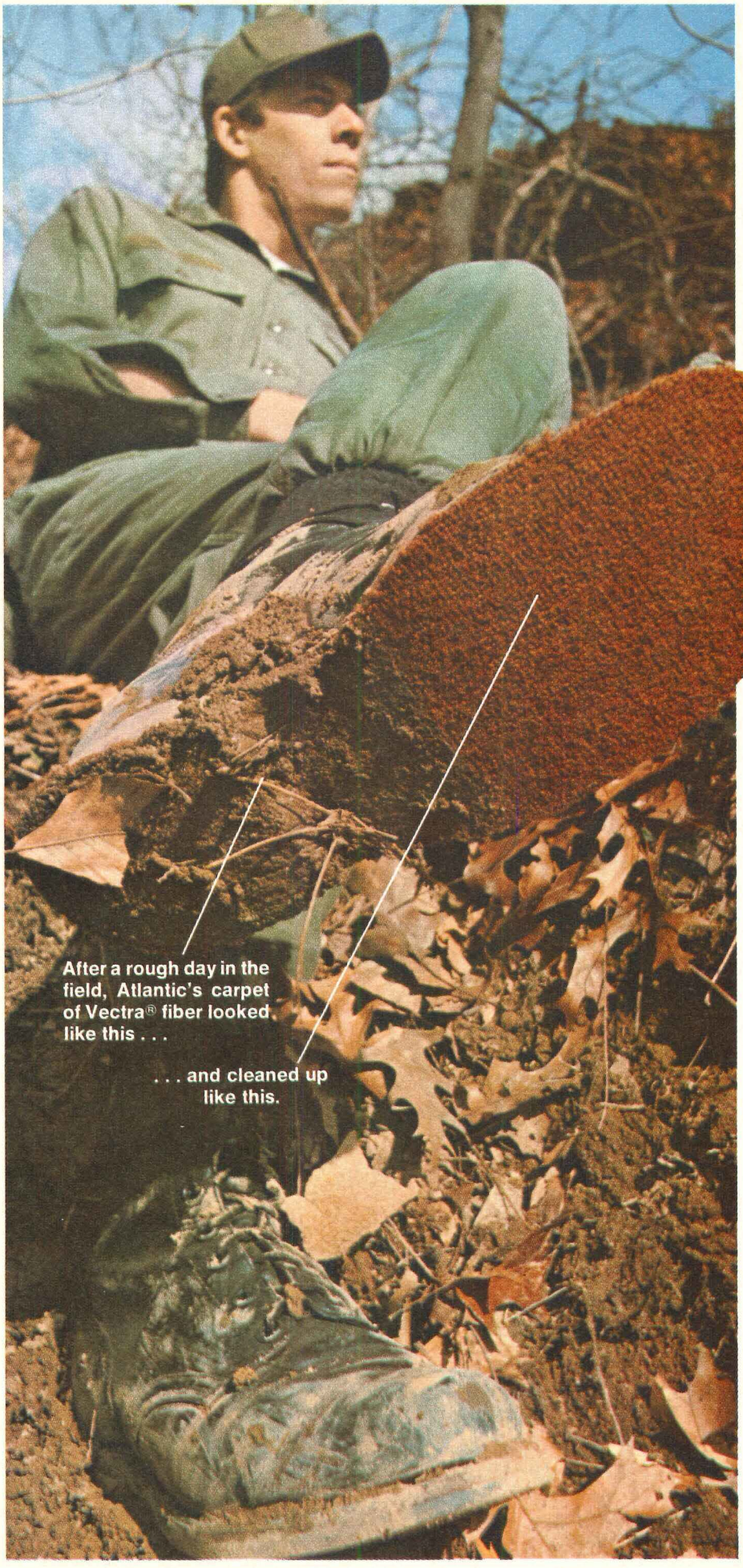
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Every important component you need for systems-building, from one source, with the advantage of single-source responsibility . . . with all components engineered to work together efficiently.

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Alexander Avenue, Pompton Plains, New Jersey 07444
Telephone: 201-835-2808

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Atlantic's carpet of Vectra® fiber gets underfoot at basic training.

Atlantic "Spartan" tufted carpet took what the Army dished out . . . bonded to a trainee's combat boots! We set up the situation to prove an important point. That whatever stain and wear-prone place you want to carpet . . . be it hospital, schoolroom or hotel lobby . . . Spartan is equal to the task. And then some. Witness how it cleaned up after Nature and Drill Instructors got through with it! Couple this stain and wear resistance with Vectra fiber's extraordinary resistance to fading, and you have a carpet that can pass any physical fitness test. Atlantic Spartan tufted carpet, made with spun yarns of 100% Vectra fiber. Put it through the paces.

Pile of 100% solution dyed Vectra olefin fiber	Secondary Backings— (wt. per sq. yd.)
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Primary Backing— 100% polypropylene	24 oz. waffle
	Available in 8 colors

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Calhoun, Georgia 30701

Please send me samples and information on Atlantic "Spartan" carpet.

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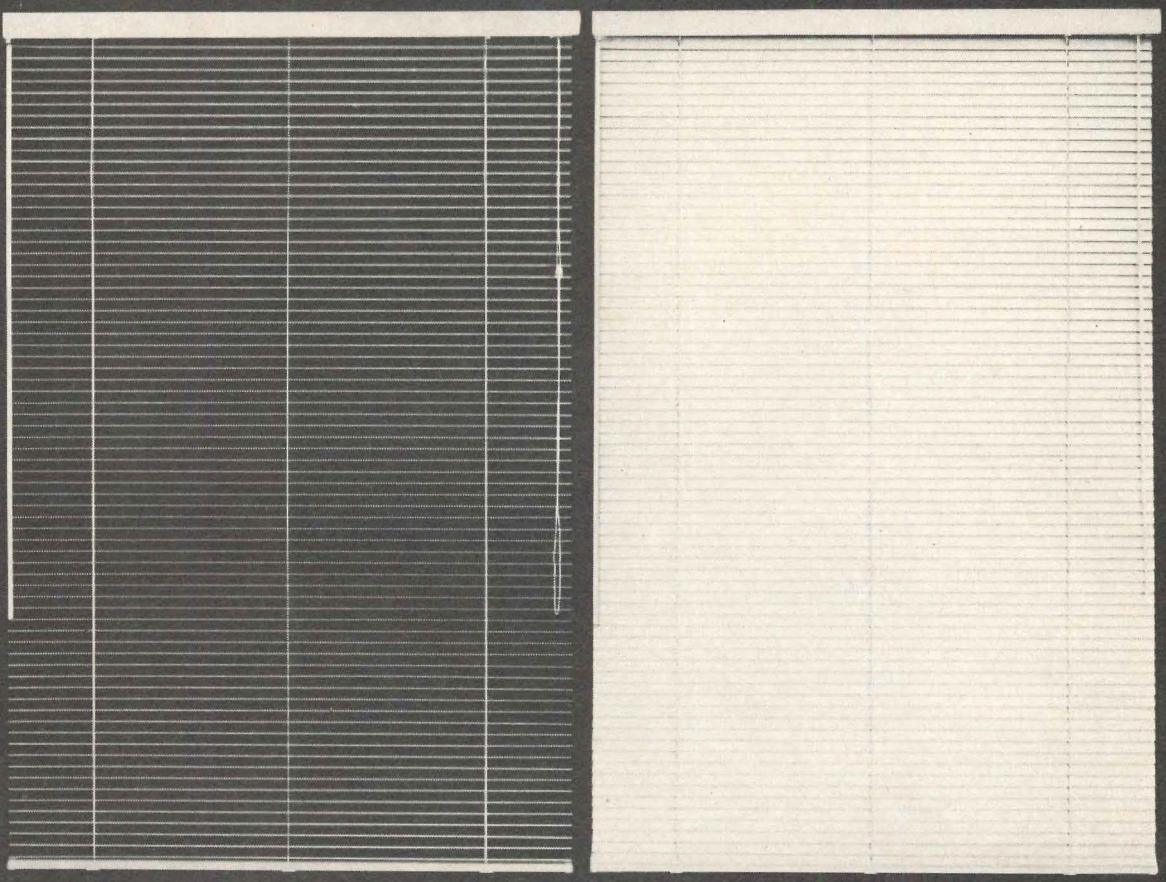
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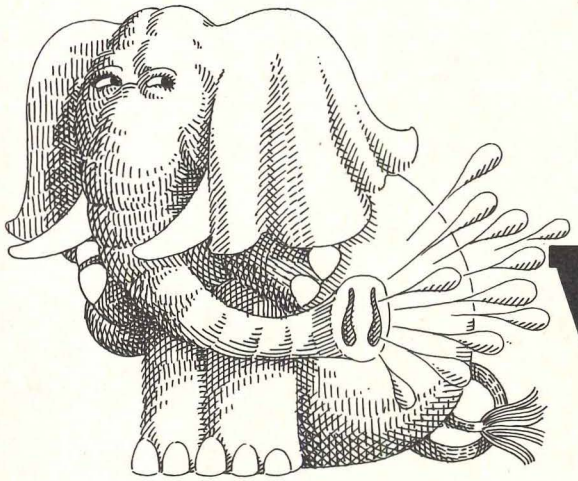
The name Gold Bond identifies fine building products from the National Gypsum Company. For further information on Tectum Full-Span Corridor Panels, write Dept. PA-60T, Buffalo, New York 14225.

Coping with kids is a National responsibility.

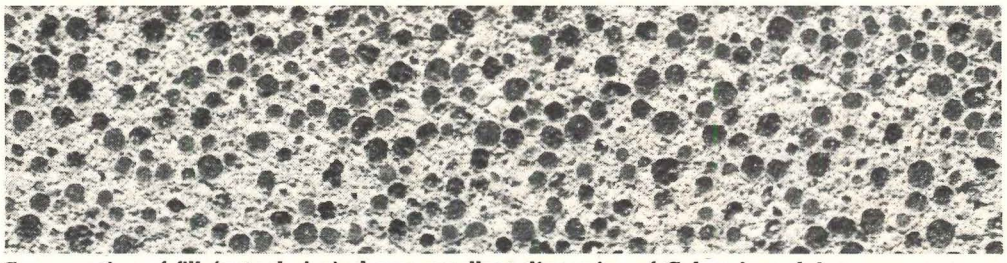
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New CELRAMIC® Insulating Roof Fill



CUTS WEIGHT, WAIT AND WATER



Cross section of fill (actual size) shows excellent dispersion of Celramic nodules.

Celramic Roof Fill eliminates the traditional problems with insulating concrete. Reason: drastic reduction of water-cement ratio to .62, about the same as for structural concrete.

Low water-cement ratio brings curing time within manageable limits. You can usually roof over in two days. Base for builtup roofing is strong, durable concrete, not a weak, powdery surface.

Celramic fill gives you reliable, lasting strength, because shrinkage is less than 0.12%. Residual moisture is negligible. Dry density is just 22-25 lbs./cu. ft.

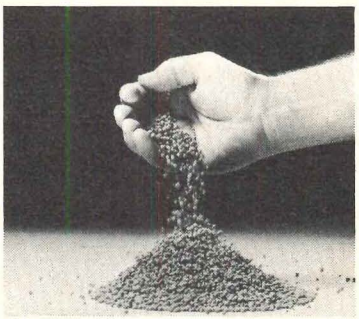
Key to low water requirement is the aggregate—Celramic nodules. The nodules are sealed, closed-cell glass spheres that are nonabsorbent, inorganic and incombustible.

Over steel centering, Celramic fill has a two-hour rating under ASTM E119 fire endurance test. Insulating value is real (K is .68). Spherical shape of the nodules gives Celramic fill easy workability. It can be sloped for drainage.

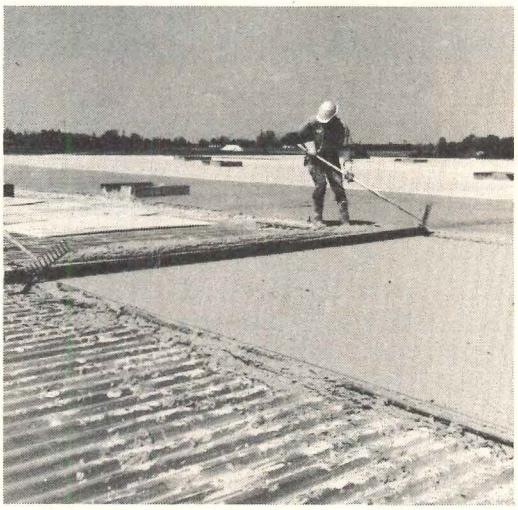
For the significant improvements you get with Celramic fill, in-place price is very reasonable. Send for free sample and technical booklet. Pittsburgh Corning Corporation, Dept. PP-60, One Gateway Center, Pittsburgh, Pa. 15222.

Celramic fill is not presently available west of the Rockies.

PITTSBURGH PC® CORNING

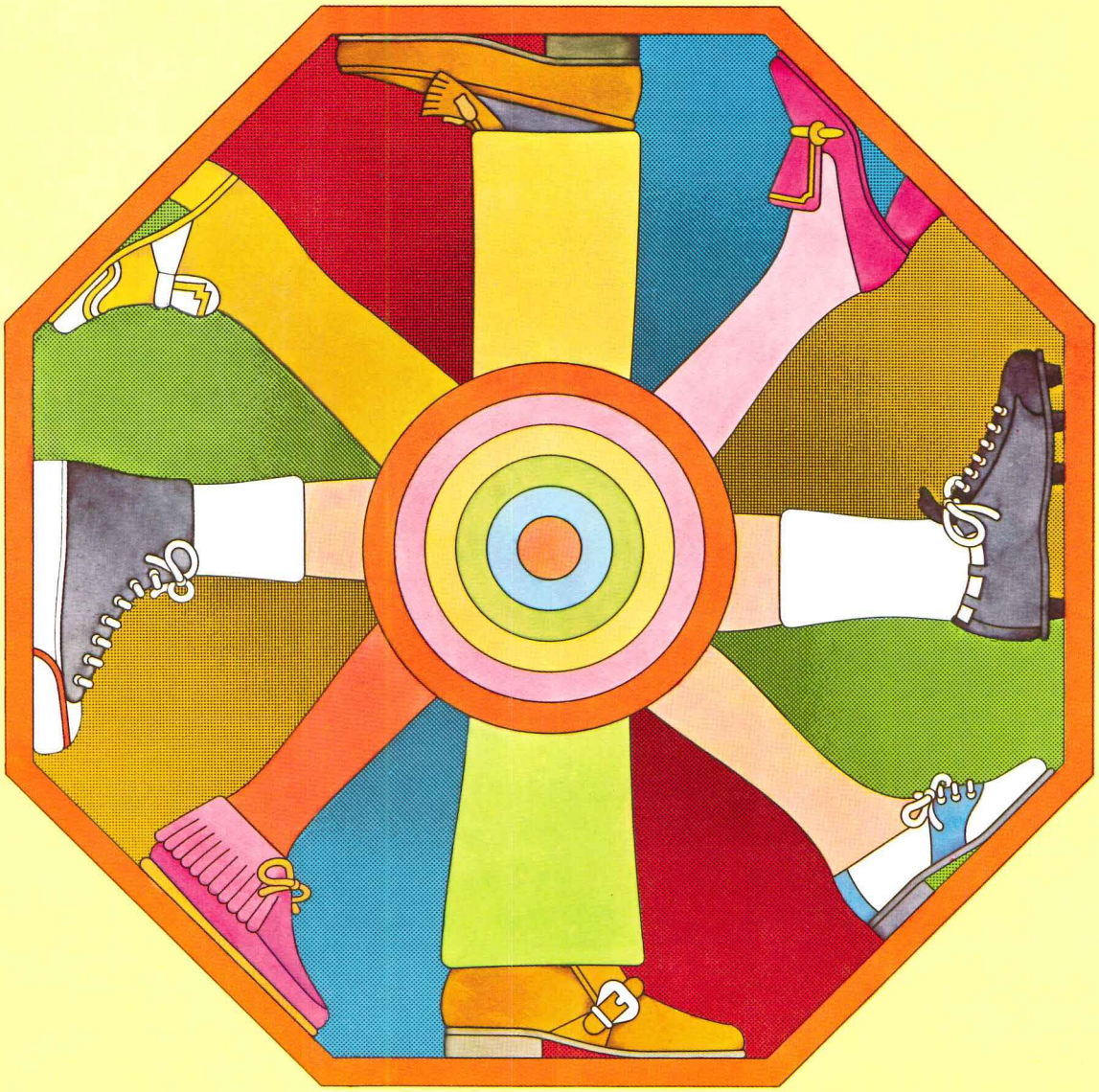


Aggregate is Celramic nodules of sealed closed-cell glass.



Celramic fill is easy to work, but won't bleed through joints.

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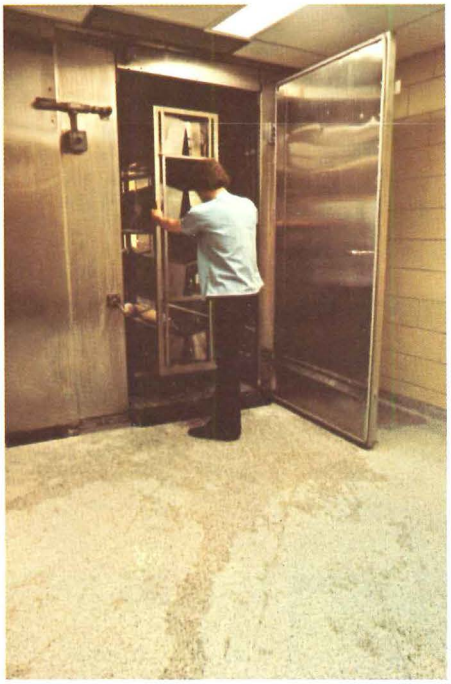
The typical terrazzo floor ranges in thickness from 5/8" to 3". Read what one architect was able to do with a remarkable new polyester terrazzo from Koppers that grinds to just 3/16" inch thick.

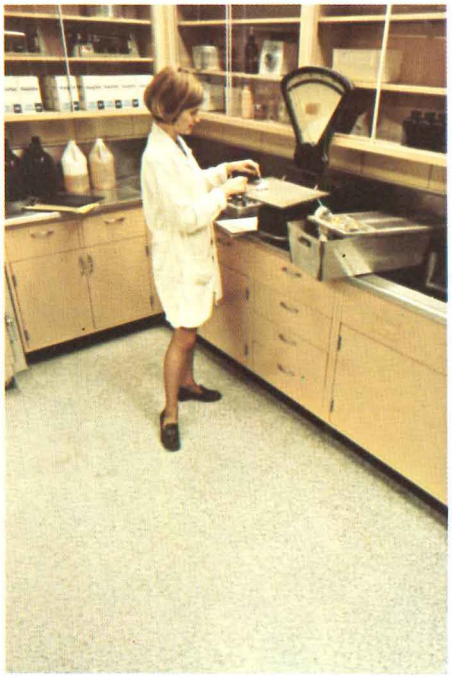
On the following pages you'll see specific examples of how Koppers products have helped architects and engineers control the effects of environment and obtain greater latitude of design, saving money for clients. Koppers building products are either permanent in themselves, or give permanence to other materials.

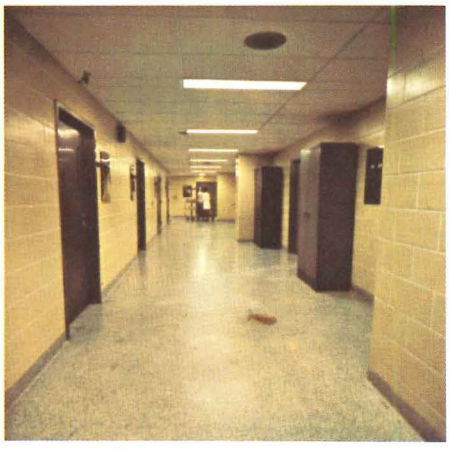
Markay® flooring goes to college











When architect Curtiss Inscho planned the Medical Basic Science Building at Ohio State University, he decided to try a new flooring material from Koppers on the 30,000 square feet of floor space in the corridors, animal holding and preparation areas. It's called Markay® Decorative Thin Set Polyester Terrazzo.

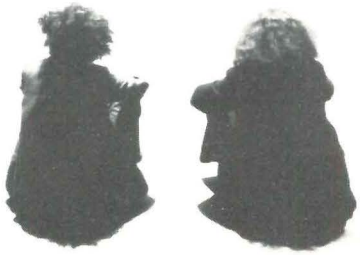
Markay is a tough, polyester-based matrix filled with marble, granite, quartz, or other aggregate. Markay is easier to install and maintain than conventional floors and it comes in virtually any color combination.

Because medical tests are conducted in the animal preparation area, the floors are steam cleaned six times daily. Markay's extremely hard surface offers good stain and wear resistance. This is especially important at the entrance to the equipment cleaning chamber where spillage is a constant problem. (See photo center right.)

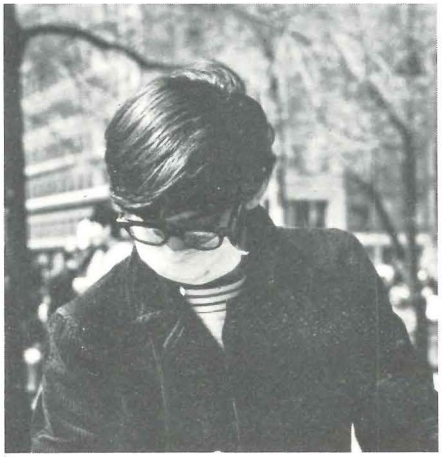
Another advantage of Markay is its relatively light weight compared to cement terrazzo. Markay can be ground to a mere $\frac{3}{16}$ inch thickness resulting in less dead load on the structure—an important consideration in upper floors of high-rise buildings. Check the coupon for complete details.

Architect: C. Curtiss Inscho & Associates





Fifth Avenue was closed for two hours on Earth Day, from 57th St. to 14th St. Warner Burns Toan and Lunde spread a table cloth and had a picnic in the street; other people, for the most part, strolled "down the Avenue."



Many Earth Day spectators were seen wearing these disposable pollution masks contributed by the Architectural League of New York.





The New York Chapter of the AIA designed a rest pavilion. Fourteen-foot-high plywood panels enclosed a 15′ x 25′ area.

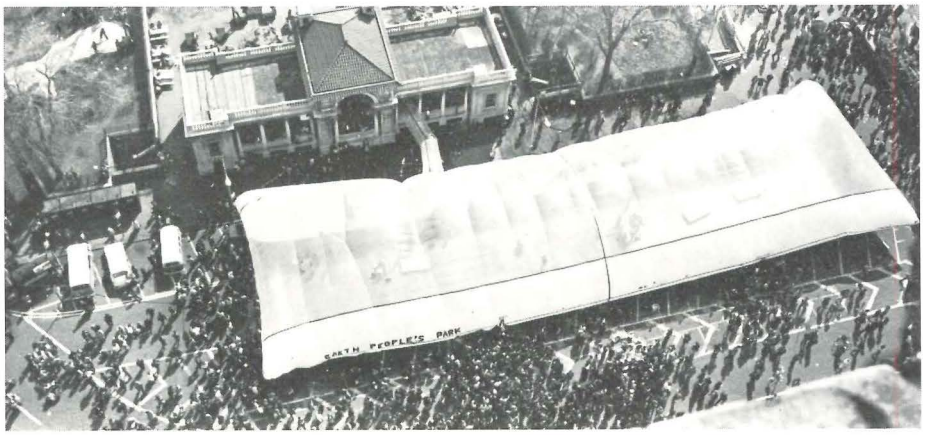
A group of Pratt students, led by instructor Barry Feiss, designed and constructed the speakers' podium at Union Square. The 13-ft high stage (with a mid-level substage for dressing rooms) was constructed of steel scaffolding and plywood. The design team included second-year students Brian Brady, Kenneth Brooks, Klaus Erikson, Frank Heffernan, Brian Reddy, Earl Solstad, and Kevin Kane. The graphics were coordinated by Christa Feiss with the help of Kate Masi and Louise Baker.

The Phenomenon of Earth Day (or How I Learned to Stop Worrying About Pollution and Love Con Ed)

In commenting about protest in the United States, Herbert Marcuse has cited as one of the novel features of our culture the fact that alien values are not "liquidated" through denial and rejection but "through their wholesale incorporation into the established order, through their reproduction and display on a massive scale."

In recent years it seems that the broader the base of appeal of a protest movement, the more politicians jump on the bandwagon and, increasingly, the day of protest takes on a festive air — one of religious patriotism. Until now, however, the government really has not found a protest movement it could ally itself with *comfortably*. That is, until Earth Day. On April 22 everybody — even the hated offenders — joined hands for the first protest movement turned "National Holiday."

While somewhat cynical about an area where it is so easy to make promises that are not followed through, P/A is certainly not against the environment or against national holidays that have real relevance to those participating. What happened in New York on Earth Day, when streets were closed to traffic, petitions were signed, speeches were given, and people made more aware of problems, was important. If more national holidays of this sort occur, perhaps conceptual groundwork for change will be laid. As a *Village Voice* headline put it, "Everyday Never Seemed so Obscene."



Most prominent structure on Union Square was a 60′ x 200′ air inflated structure designed by Yukihisa Isobe and sponsored by Earth People's Park, a New York commune concerned with ecotechnology. The giant bubble, of clear 6 mil polyethylene sheets sealed with polyethylene tape, was inflated to a height of 20 ft between rows of parking meters serving as wind anchors. Thousands streamed through the supposedly pollution-free environment during daytime festivities and an evening light show. E.E.P. plans future street happenings.

Coordinator of New York's Earth Day was Environmental Action Coalition, a recently formed group responsible for involving nearly 200 environmental groups in the city.





Pearson Chairs by Knoll

The Pearson chairs are so sensitively designed that they appear to be a study in pure form, but actually solve the dual problem of office seating: function and comfort. To preserve the lines of these designs Knoll has developed a new compact control unit which eliminates the mechanical clutter underneath. Another contribution by Knoll to the total office. Designed by Max Pearson of the Knoll Design Development Group. **Knoll Associates,** Furniture and Textiles, 320 Park Avenue, New York, New York 10022. Knoll International operates in 29 countries.



Minneapolis' Hennepin Avenue
(Almost All Right Except for TV and the Pill)

P/A asked architect Bernard Jacobs (of Team 70 Architects, St. Paul) to send word back on the recent symposium at Walker Art Center concerning a honky-tonk street in Minneapolis. Here is his report.

Hennepin Avenue in Minneapolis — named after the 17th Century Franciscan explorer Louis Hennepin — used to be the local "Strip" — with shooting galleries, strip joints, bars and demimonde types. Of late, it has come on bad times, as has been the case in so many cities, and, in contrast to Larry Halprin's Nicollet Mall one block away, it looks shabby and neglected.

Last month — in an effort to stir up discussion and to gather short-term remedies for the Avenue — Walker Art Center, the City of Minneapolis Planning and Development Department and the Minneapolis Downtown Council, with assistance from the Graham Foundation of Chicago, sponsored a two-day Forum: "Hennepin, The Future of an Avenue."

The participants were as chic a group of luminaries as was ever assembled in a local cause. Their contributions were varied and at times bemused.

Philip Johnson said "I don't know why I am here. Hennepin does not need an architect. What Hennepin needs is money. What killed Hennepin was TV and the pill." Bob Venturi predictably found Hennepin Avenue "almost all right" and asked for a process of "enlightened expediency." In an impassioned celebration of current folk art, he asked, with Benedetto Croce, that "we discover the ordinary." Artist Otto Piene countered that the ordinary usually emanates from ordinary men and that their work need not be perpetuated. He disposed of Pop art by saying that it is really a form of "capitalistic realism," the urge to consume, epitomized by the slot machine. Tony Smith, the sculptor, delighted the audience by imagining a Claes Oldenburg or Niki de Saint Phalle floating over Hennepin. Barbara Stauffacher Solomon showed slides of her work where inexpensive signs, essentially just paint, were used as art. Walter Netsch divided the street into a sequence of five spaces; "outdoor living rooms," each for a different kind of celebration. Sculptor James Seawright's film of his work was in support of his suggestion that sculpture and light can become "an interacting element" with people, the movement of people. The most fundamental question was raised by M. Paul Friedberg who asked "what is the nature of entertainment today, how is entertainment evolved?" Certainly if Hennepin Avenue, or any other Strip, is to have a future, the nature of entertainment today will have to be more clearly understood.

In summary, Roger Montgomery from Berkeley called the whole affair "An Emperor's clothes situation. A high taste, upper-middle-class institution . . . wants us to look at a fairly ordinary street with a couple of bars as a work of art. I think it's a conceit to have an art museum walk up and down this avenue as if it were a canvas. I'd suggest instead that we're really part of a process of legitimizing some kind of community effort to do something with the street."

And thus ended the Forum of the Luminaries, whose mission was never quite clear, not even to themselves it seemed, but whose presence had obviously been designed to light the Avenue. Father Hennepin perhaps was not so puzzled.

New Registration Exams Proposed by NCARB

In the past several years architectural registration exams have increasingly become the focus of protest, to the point where one group in Boston, The Committee for Registration Reform, has been challenging Massachusetts' registration procedures in court and through a series of meetings and seminars. A notable event was the conference in December, "Registration and Relevancy," which even included members of the NCARB.

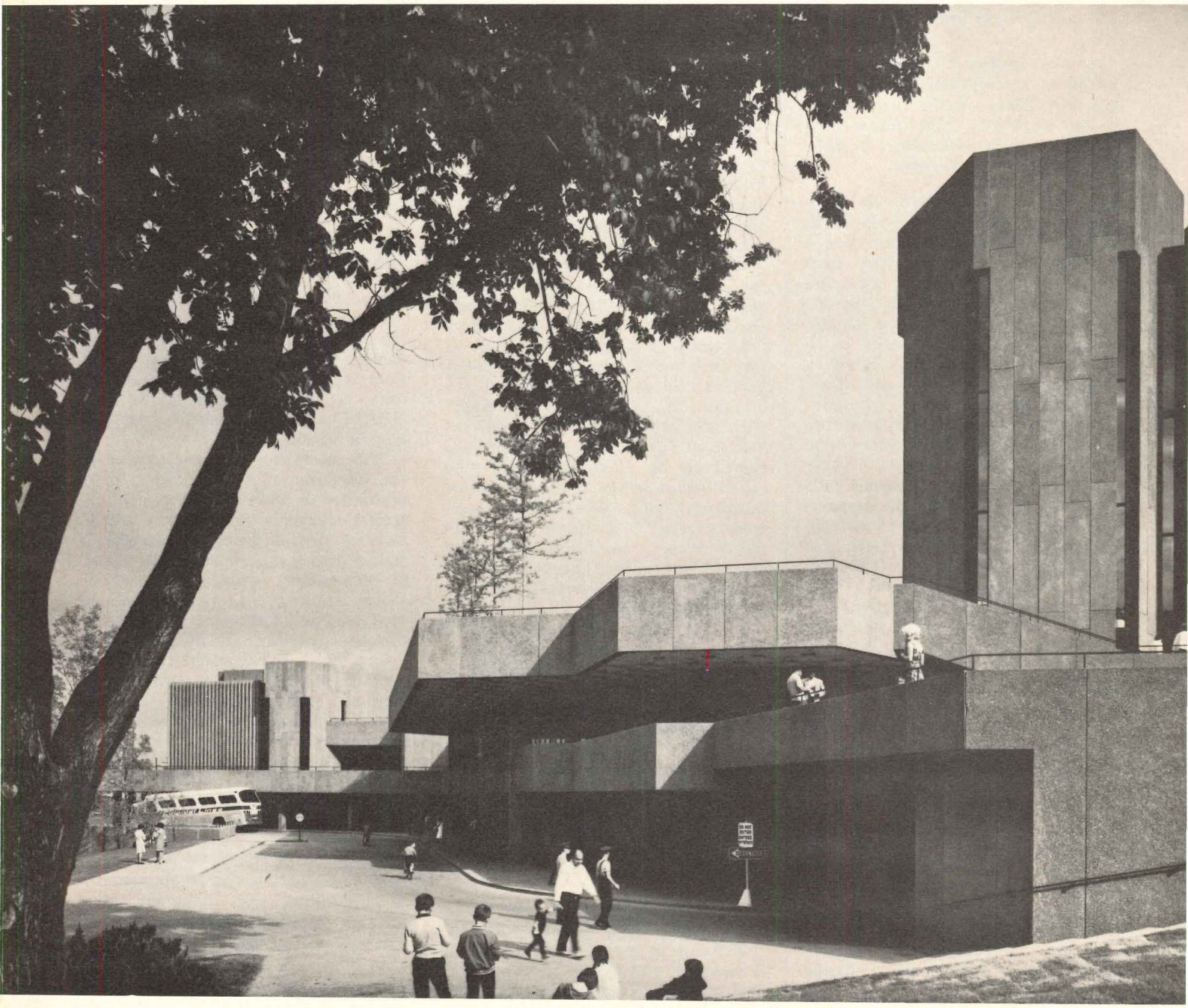
Complaints revolve around the subjective judging of the site planning and design sections of the seven-part examination, use of academically-based questions for those out of school for three years, and the need to test those areas of knowledge that are learned in school as opposed to those that are only learned in practice. Many architects also feel that the exams do not reflect architecture as it is currently practiced, since the architects' concerns involve other disciplines. The length of the exams, and their restrictive nature (less than 20 percent pass the first time) are additional sore points.

Responding to these complaints the NCARB Examination Development Committee, led by E.G. Hamilton, has been developing a report that is being submitted to the NCARB conference currently being held in Boston.

The committee has recommended the adoption of the following prerequisites in order to take the registration exam: a professional architectural degree from an accredited school plus a minimum of six years of college-level education or professional training (five years of school plus one year of training or six years of school) or both; and no age limit.

The exam itself would emphasize problem-solving dealing with a significant environmental issue. It would test the applicant's ability to synthesize basic general knowledge of environmental needs, human behavior, construction science, design and planning fundamentals, legal requirements, economics, and management. The architect thus would be in the position of strategist and would be evaluated according to his over-all understanding and judgment. The exam is intended to last only one day and make use of machine-graded, multiple-choice questions. If approved, the new exam will not be in use until 1974, with gradual changes incorporated into the existing exams.

Concrete with POZZOLITH—expressive medium for housing the performing arts



Owner: Government of Canada. Architect: Affleck, Desbarats, Dimakopoulos, Lebensold, Sise. Structural Consultants: Adjeleian & Associates. General Contractors: C. A. Pitts General Contractors Ltd. (Phase I); Foundation



Conceived to "nurture and encourage growth and excellence in the performing arts," Canada's National Arts Centre in Ottawa is itself a showplace of artistic expression.

The complex is a succession of concrete terraces overlooking the Rideau Canal. A triangular grid repeated in the building design reflects the shape of the site and accents the geometry.

Throughout the structure, intricate angles, clean cubes, and bold textures testify to the versatility and character of fine concrete. The structural system is cast in place; precast concrete panels are utilized functionally and decoratively.

On the exterior, variation in concrete finishes identify, or "code," interior activities. Inside, large and colorful aggregates are exposed for dramatic decor.

Both architecture and structure demanded optimum performance from the concrete. Consistent with this objective, *POZZOLITH* admixture was specified for the entire project.

POZZOLITH improved the placeability and workability of the concrete, produced fine-textured surfaces, expedited both early and ultimate strengths, and reduced shrinkage cracking.

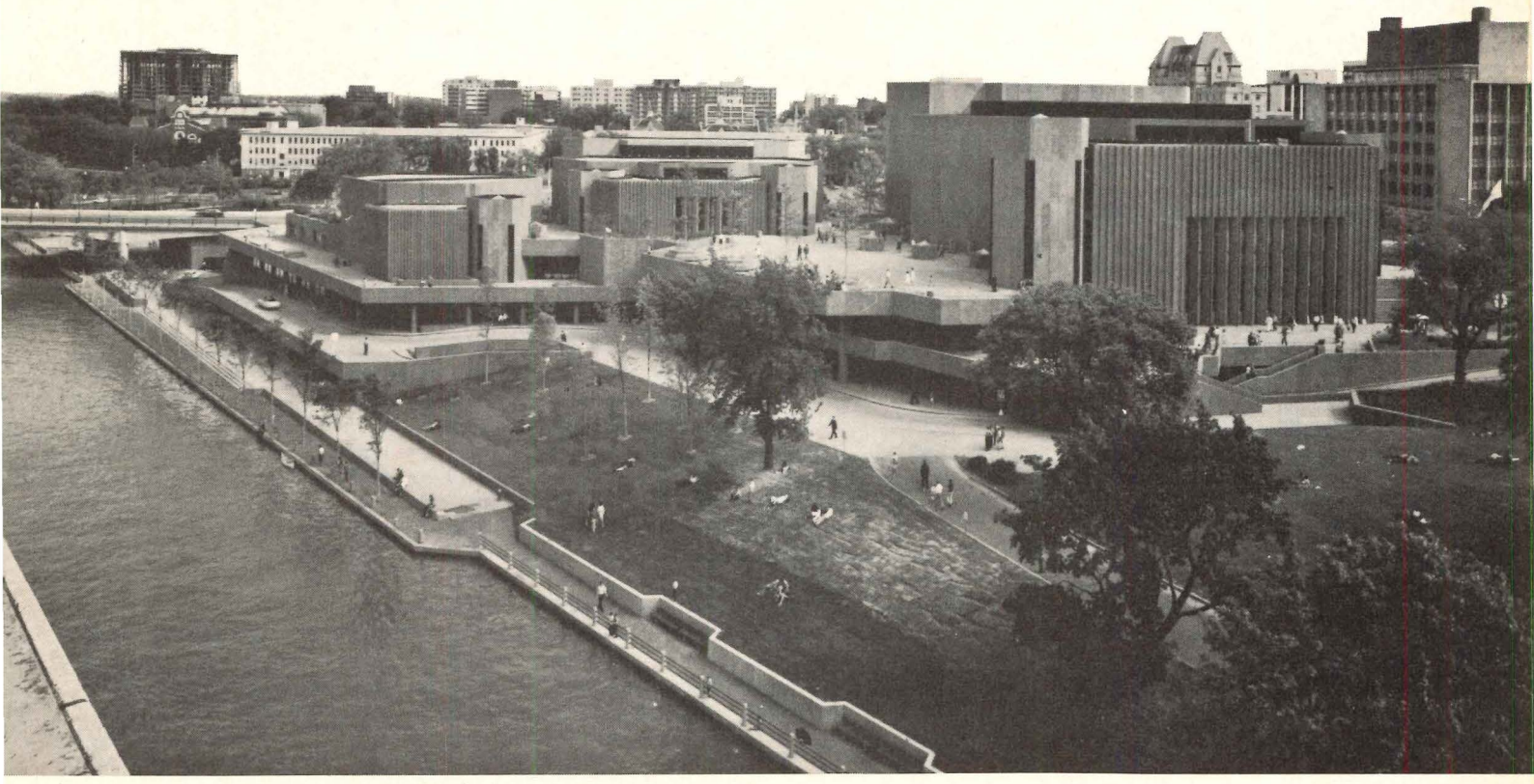
POZZOLITH delivers its many benefits where performance counts—on the job. That's why, over the years, *POZZOLITH* has earned its name "The Performance Admixture." Discover how *POZZOLITH* admixture can contribute to your next project. Call your local Master Builders field man. Or write Master Builders, Cleveland, Ohio 44118.

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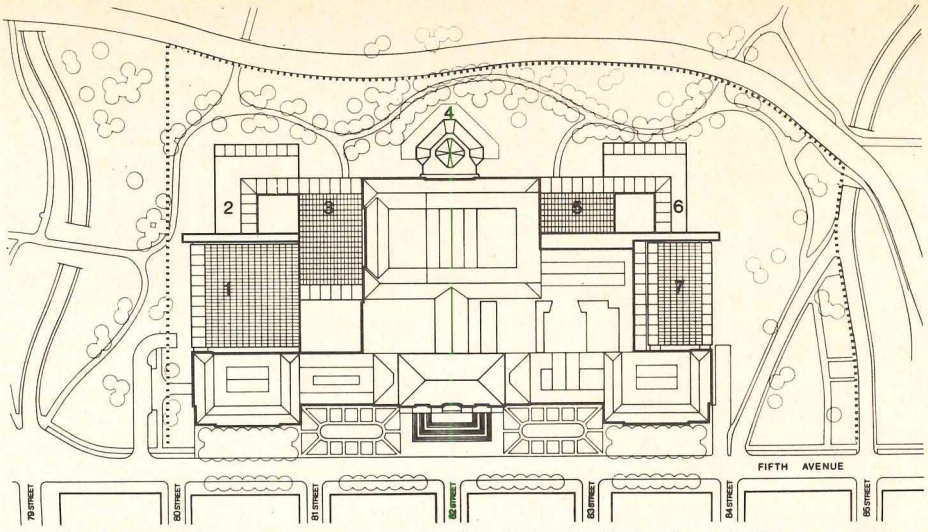
The Met and its Master Plan

New York's Metropolitan Museum has unveiled plans for major expansion that would increase its size by one-third. Despite protestations of encroachment on Central Park, the plan, drawn up by Roche and Dinkeloo Associates, keeps expansion mostly at the rear of the building within the rectangular volume established by the length of the Fifth Avenue façade and by the building's width at center. The expansion also stays within the limitations established by the museum's 1876 charter agreement with the city that permits expansion between 80th and 85th Sts. and Fifth Ave. and the East Drive inside the park. The new extensions are, for the most part, glass pavilions that act as transitional elements between the existing building and the open park land at the museum's rear. To further the transition, the rear elevation has been redesigned to function as an entrance façade from the park, with entrances through two glass-enclosed year-round garden courts. Both courts connect newly added north and south wings to the main museum building. Much of the construction will be placed over what is now parking lots and loading docks for the museum (these will go underground). Only the American wing extension (northwest corner) and the Lehman pavilion (center rear), constituting one-fourth of the expanded area, actually occupy park land. Thus, although one may question the Met's rationality in adding a few more miles to the museum-goer's tour of its possessions, it is not doing so at the loss of much valuable park land, or with a structure that visually dominates its natural setting.

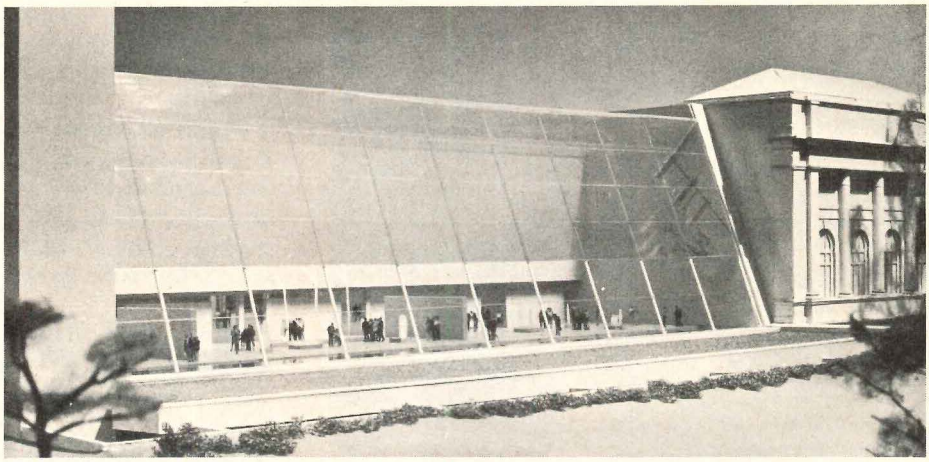
A more important issue for discussion is the proposed removal of the interior staircase designed by Richard Morris Hunt. In 1902 Hunt added the great hall, with the stair and the central part of the Fifth Avenue façade, to the Calvert Vaux-James Vrey Mould building of 1882, (McKim Mead and White added the north and south wings flanking the entrance in 1911–1926). The master plan calls for removing the staircase, adding side escalators, and a skylight, to create an axis from the entrance to the rear of the building. There the Lehman pavilion for the Robert Lehman collection will be situated. This arrow-headed glass enclosure, already occupying center stage for the newly emphasized rear elevation (and transforming the only remaining exterior wall of the Vaux-Mould building into an interior wall), will be assured greater prominence by being so directly connected with the Fifth Avenue entrance. The emphasis might seem quite natural considering that the museum decided on its expansion as a result of acquiring the Lehman collection, the Michael C. Rockefeller Collection of Primitive Art, and the 2000-year-old Egyptian Temple of Dendur — a gift from Egypt to the U.S. But the plan to remove the grand staircase appears excessive and only seems to substantiate the rumor that the Lehman collection was bequeathed to the Met on the condition that it have direct visual access from the main entrance. Incidentally, the Landmarks Preservation Commission has to approve of exterior changes for all designated landmarks (and consented to the recent remodeling of the Fifth Avenue façade by Roche and Dinkeloo, with its expanded steps, addition of fountains, removal of the driveway, etc.), but has no jurisdiction over the interior.

The $100 million Lehman collection evidently had more than one string attached: the glass pavilion will re-create seven period rooms from the Lehman mansion to show the collection as Mr. Lehman requested; meanwhile his son Owen Lehman is filing suit to block the gift reportedly because the collection will not be before the public's eye as soon as his father would have wished it. As it is, the pavilion has already been passed by the board of trustees (they will vote piecemeal on the rest of plan), $8 million needed to build has already been raised privately, so that only the Parks Commission and Arts Commission have to approve it (city funded construction like the Temple of Dendur wing needs approval of the City Planning Commission, Budget Director, City Council, Board of Estimate). Thus, the Lehman pavilion is the first scheduled extension.

The location of the Lehman collection is logical enough — adjoining the present Western European art collections — and its inclusion of early Renaissance Italian paintings and El Grecos, Memlings, and Matisses would make any museum curator drool. But, what price art?



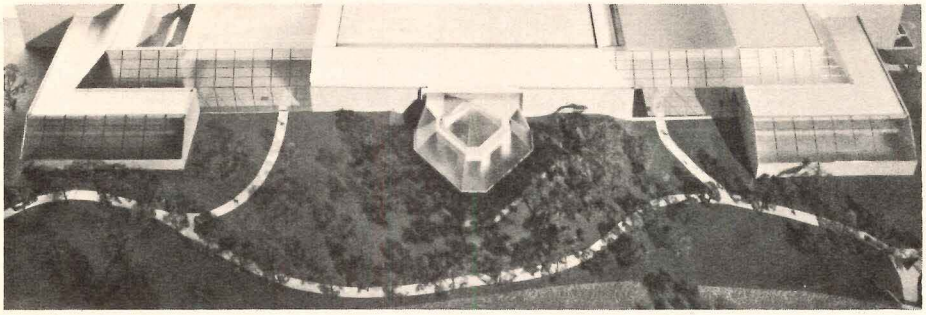
Plan showing expansion of the museum: south wing (1) for the Rockefeller primitive art collection; added space for 19th and 20th Century European and American Art (2); the Lehman pavilion (4); a north wing for the American wing extension (6); and the Temple of Dendur (7). The Fifth Avenue entrance (front) shows the recent remodeling done by Roche and Dinkeloo in which stairs were expanded, fountains added, trees planted. In all, 325,000 sq ft will be added, with costs estimated somewhere over $50 million.



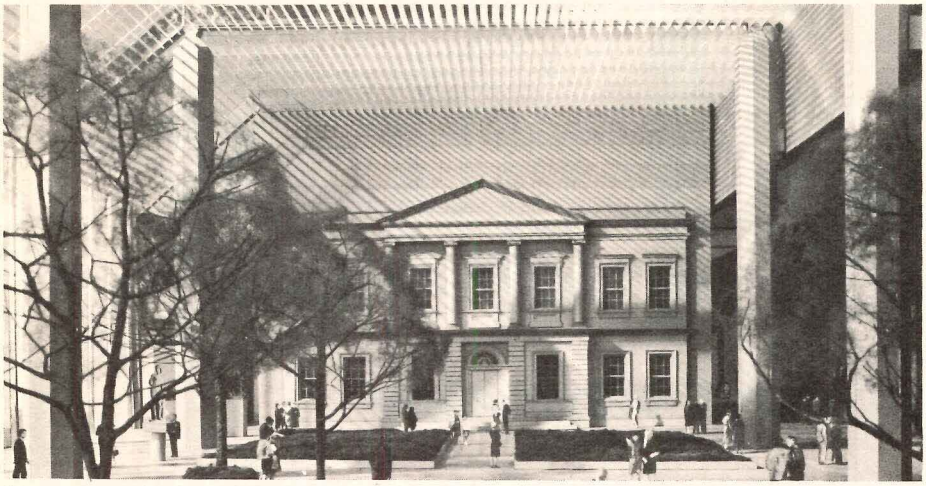
Proposed south end addition to hold Michael C. Rockefeller Memorial Collection of Primitive Art (60,000 sq ft) will be built over existing parking lot. This wing, and the one on the opposite end, is connected to the museum through glass-enclosed courtyards.



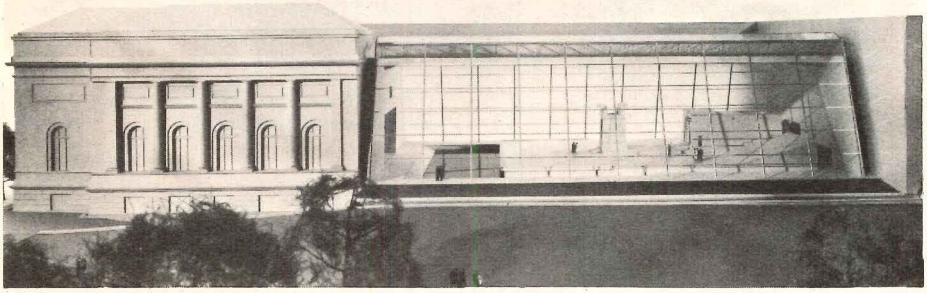
Glass-enclosed South Court, **(3 on plan)** to be one of the rear entrances to the museum, connects primitive art wing to the main lobby of museum. Preserved as one of its walls is the 1889 façade by Theodore Weston.



Rear of museum facing park. The American wing extension (left, 60,000 sq ft), the Lehman collection (center, 25,000 sq ft), European art wing (right, about 28,000 sq ft). Pedestrian paths lead into two glass-enclosed planted courts that provide entrances to the rear of the building.

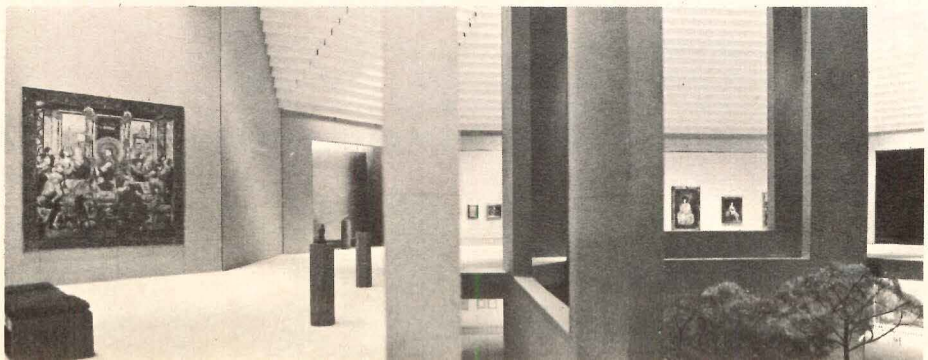


Glass-enclosed North Court, **(5 on plan)** one of the rear entrances to the museum, connects American wing to the main body of museum. Façade of old Assay Office built in 1820s by Martin Thompson will act as portal for museum entrance.



Temple of Dendur on north end of museum. The 40,000 sq ft enclosure will be entirely glass; stippled on the roof and south side, clear facing north. A backing mirror on south side will be installed to balance natural lighting. The temple is to be built on a platform over a pool to help re-create its Nile setting. The present parking lot and loading dock will be underground.

Main gallery area of Lehman pavilion. The arrow-headed pavilion is composed of two levels around a central court; paintings occupy inner gallery space, with period rooms grouped around outer edge. The lower grade-level floor will contain print and drawing galleries for the collection.



Architecture Exhibition at Met

The first architectural survey exhibition to open at the Metropolitan Museum in many years is currently on view. Entitled "The Rise of An American Architecture," the show was organized by Edgar Kaufman Jr. with the aid of assistant curator Morrison Heckscher, and sponsored by the Museum, the National Trust for Historic Preservation, and the New York Chapter of the AIA.

In explaining the show's selection, Mr. Kaufman told P/A: "Architecture and its sister, landscape architecture, are seen to meet the needs of industrial civilization in great commercial buildings, small homes, and city parks. These three proved to be mutually reinforcing, and it is suggested that American architects in the later 19th Century mastered many environmental problems by means that could be made useful again today if understandingly restored and adapted."

The survey is restricted to a small but thoroughly presented selection. Representing commercial buildings, for example, are Daniel Burnham's 1902 Flatiron Building, the tallest skyscraper in the world at that time; the 1828 Arcade in Providence, R.I., designed by Warren and Bucklin, which was one of the earliest shopping centers; and Sullivan's 1889 Auditorium Building in Chicago where a number of different functions were combined in one structure.

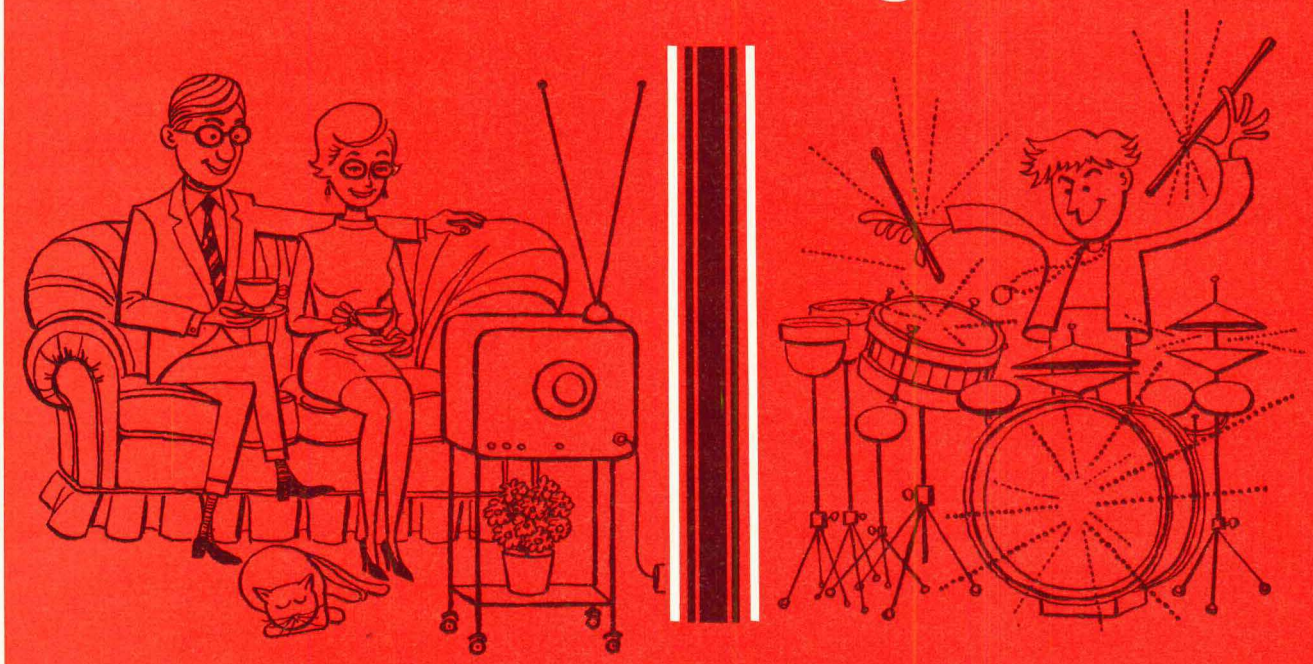
The development of domestic houses is seen in the work of Andrew Jackson Downing, H.H. Richardson, and Frank Lloyd Wright (for further information see P/A, April 1970, p. 80).

City park examples are Savannah's small city squares laid out by James E. Oglethorpe in 1733, New York's Central Park and Prospect Park designed by Frederick Law Olmsted and Calvert Vaux in the 1850s and 1860s, and the master plan by Olmsted and Burnham for Chicago, in the late 19th Century.

The handsomely installed show, designed by architect James Polshek and graphic designer Arnold Saks, is composed of an array of backlit color photographs in elevated modular light boxes.

Mr. Kaufman is also the editor of the book *The Rise of An American Architecture*, published by Praeger in conjunction with this show. It includes essays by Henry Russell Hitchcock, Albert Fein, Winston Weisman, and Vincent Scully, and texts from the exhibition.

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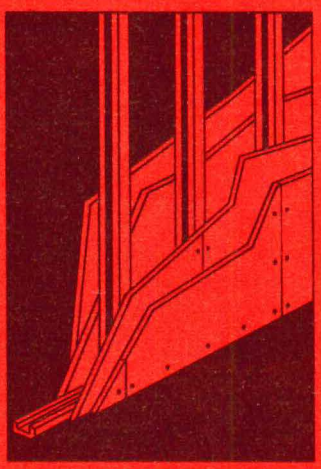


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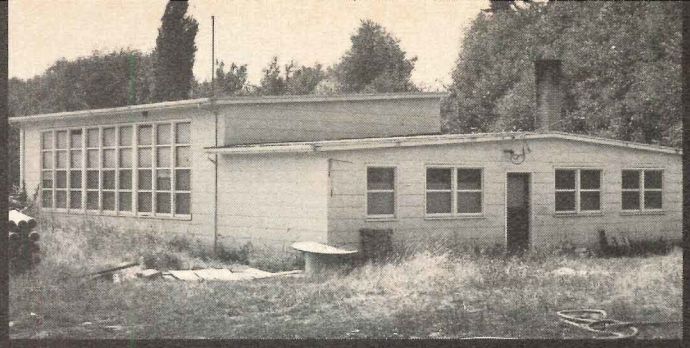
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Red cedar shingles make an old place a showplace.

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Needing a multi-purpose conference center, developers of an exclusive Northwest resort community completely remodeled a long-abandoned school building which had been on their property. The result is this "new" structure featuring imaginative applications of red cedar shingles inside and out.

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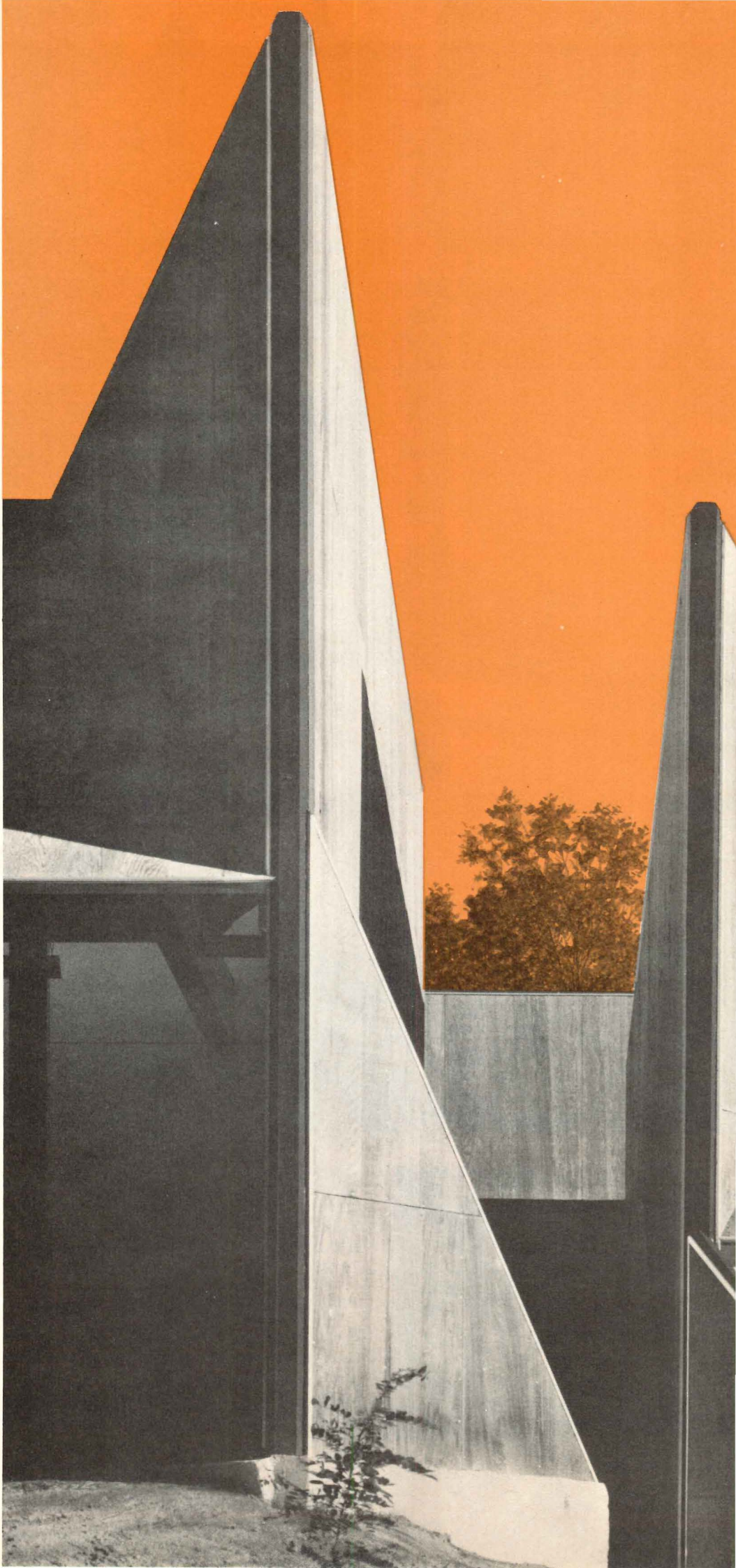
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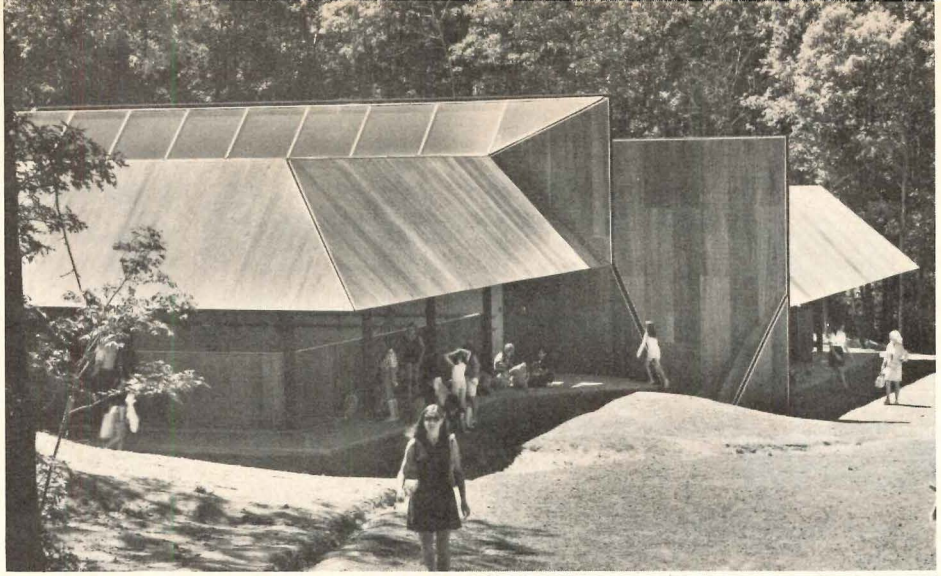
Usdan Center
for the Arts,
Huntington, New York.

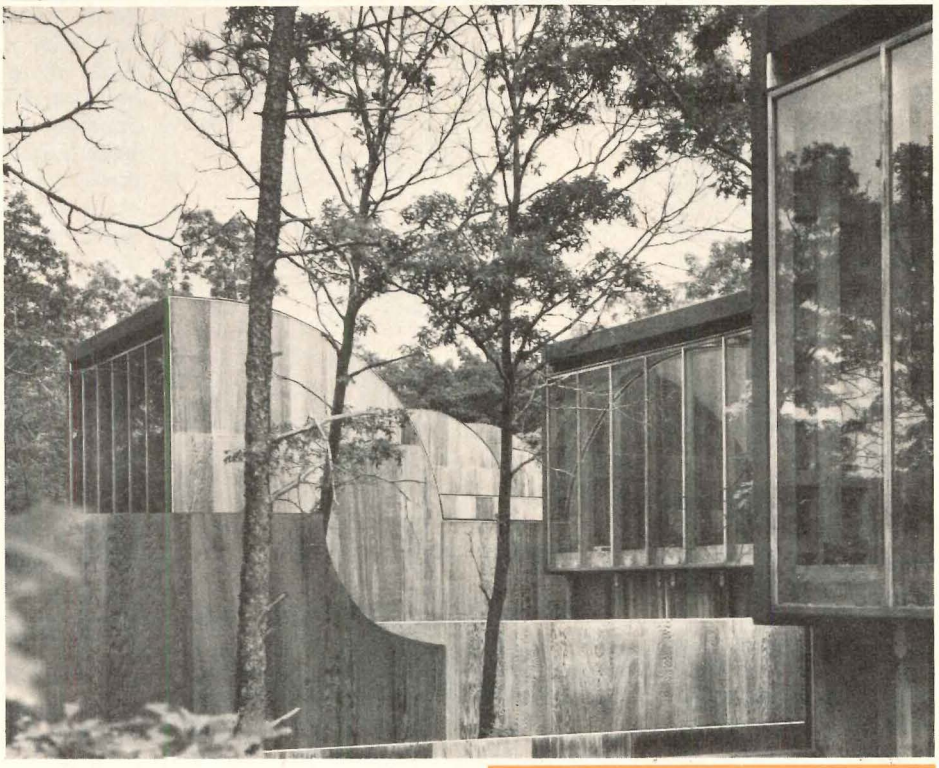
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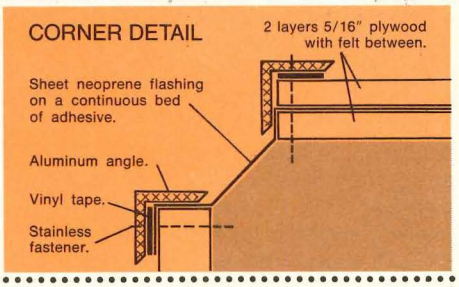
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The buildings are basically open-air, wood- and steel-frame structures with a plywood skin. Plywood is also exposed on the interiors. The buildings are multi-planar or vaulted in form. Differing planes or surfaces are separated by a hinge-like joint as shown in the detail.

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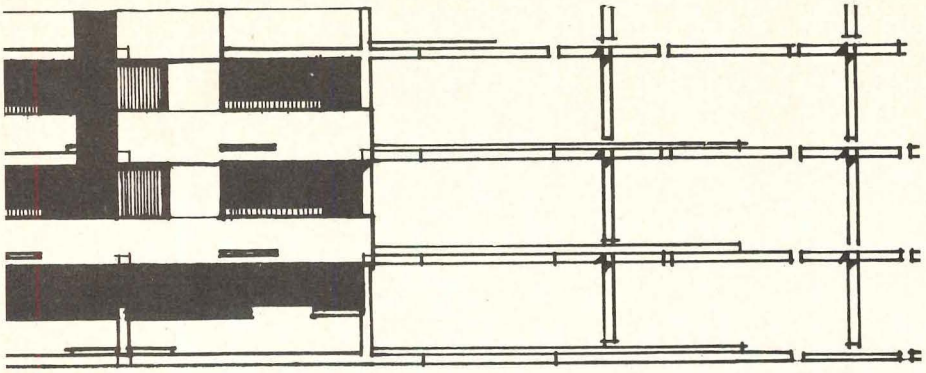
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Elevation of housing system

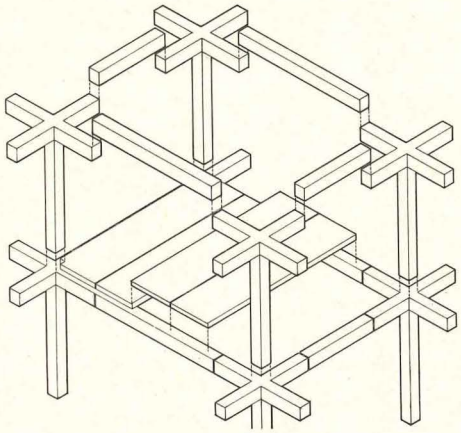
Afram Mini-Mall

It may sound like a new game but it is actually an innovative program that involves economic, political, and physical means to realize community aspirations. AFRAM (American Future Reflection on All Men) Associates, Inc., is a group of black businessmen who want to create community consciousness in Roxbury (Boston, Mass.) through economic development. By inspiring the community to rebuild itself they hope to give the residents a sense of self-esteem and galvanize them into positive social and political action.

As part of this concept, AFRAM proposes that the community purchase their properties collectively and maintain a cooperative ownership plan. A prototypical step is the creation of a self-owned and managed business district. Devised by Stull Associates, Boston architects, the program calls for a "mini-mall," a newly constructed retail development that would accommodate parking, office space and co-op or condominium housing vertically or horizontally within the development.

AFRAM would act as the landlord, coordinator, purchaser, and financier of the project (with government financing through E.O.L. or the small businessman administration ownership programs). It would also provide general administration services for the individual businessman such as bookkeeping and payroll assistance, and offer any advice or expertise needed. For these services, AFRAM would base its fees on the individual businessman's gross profits with specific fees charged for special services. Another advantage of this collective venture would be the coordination of advertising and buying efforts, where feasible.

The program calls for new construction because of the undesirability of small converted storefronts currently used, and the psychological effect of a separate new complex. The structural system selected by Stull Associates is Componoform, a precast concrete assembly utilizing a cross beam and column, a tie beam, and a ribbed or hollow-core floor slab.



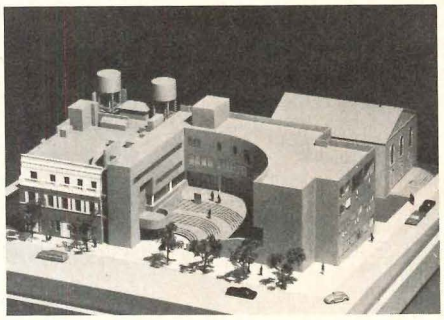
Components of building assembly

Commercial space would occupy ground level with parking on the roof, depending on site. The plan for individual shops is based on a 22′ x 56′ module (1200 sq ft) which could be combined or subdivided according to needs. Storefronts are basically composed of a vertical panel with a projecting fin (the fin is roofed for an entry, enclosed for a projecting window, used singly for supporting signs, or installed at the bottom to make a bench for patrons). Graphics lighting planting coincide with the consistent structural and storefront treatment to give a strong unified image to the development.

Projected housing units in the complex are 20–30 percent larger than apartments currently using FHA minimum property standards. The module system translates easily into a double-loaded corridor plan: one bay allows a one-bedroom apartment; one and one-half bays, a two-bedroom apartment; and two bays, a three-bedroom unit. The system is equally flexible for office leasing since the columnar structure allows freedom in space allocation.

Stamford Celebrates Earth Day

While Noah and his country blues group added to the sounds of the not-so-silent spring air, students from the Stamford Branch of the University of Connecticut came up with a cache of unusual pollutants as they proceeded with their clean up of Stamford's once-sparkling, once-swimmable Rippowam River. Filled with beer cans, discarded sneakers, and gum wrappers were dozens upon dozens of rusted shopping carts from a nearby supermarket (original cost $40). Along with an occasional upholstered car seat (conjecture ran high about the bodies), the young workers for a better Stamford environment found themselves with the back-breaking job of uprooting these metal wagons, and wondering what contribution they had made in their day's play in a river polluted with considerably more than shopping carts.



Arts-for-Living Center

Lower East Side, New York
Prentice & Chan, Olhausen, architects

Activities in the arts, from electronics to clay, will be housed in the Henry Street Settlement's new Arts-for-Living Center on Grand Street, New York's Lower East Side. It is the first such center designed specifically for a multiracial population living in a poverty area. Professionals, students, and neighborhood residents will share the classrooms, art gallery, auditorium, and studios and workshops.

The building wraps around an amphitheater-courtyard, open to the street for "sidewalk theater" and inviting community use. The main lobby is on its own level in the west wing (left) adjacent to the existing Henry Street Playhouse, with entrance connecting to the outdoor amphitheater stage. The lowest level, following the contour of the site, contains a pottery studio on grade, facing the downhill slope of Willett Street (right), and a below-grade multipurpose auditorium (seats telescope back to the walls) beneath the amphitheater and lobby.

Bally urethane foam insulation first in nation to pass UL Fire Test for walk-in refrigerator panels

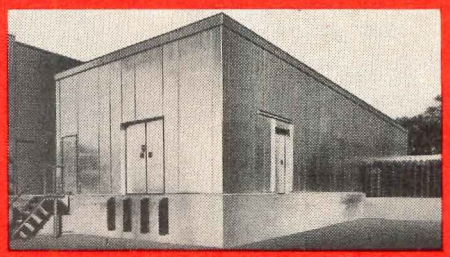
For the first time ever, Underwriters' Laboratories (UL) has granted a 25 low flame spread rating to a urethane foamed-in-place Walk-In refrigerator panel. It was awarded to Bally and now in most states qualifies their panels to receive the same low rate which insurance authorities apply to masonry refrigerated structures.

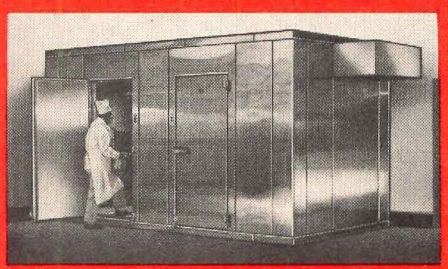
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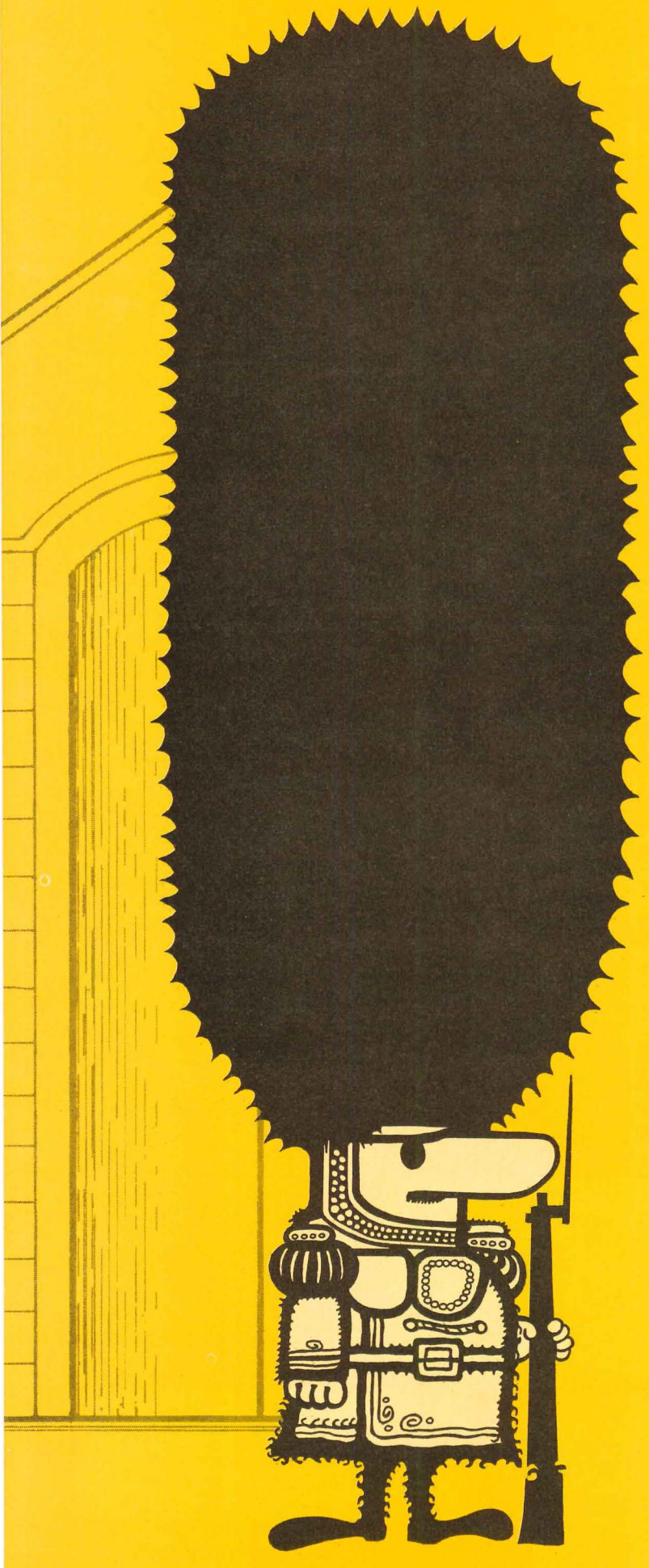
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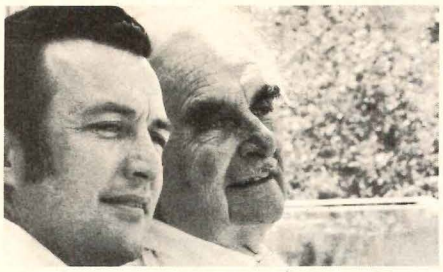
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Richard Neutra with his son Dion.

Neutra Dies at 78

On April 16, Viennese-born architect, Richard Neutra, who had had a practice in the U.S. since 1925, died of a heart attack in Wuppertal, Germany. One of the architects most influential in launching the modern movement in the United States, he has indelibly left his mark here, particularly on the Silverlake region of Los Angeles, where his many houses create a landmark site. Mr. Neutra was born in Vienna in 1892 where as a young boy he became familiar with the work of Otto Wagner. He studied at the Technische Hochschule in Vienna and at the University of Zurich, finishing his studies in 1918. Neutra and Erich Mendelsohn designed the Berliner Tageblatt building in 1921 and then collaborated on the first award winning design for a business center in Haifa in 1922. With the prize money Neutra came to the U.S. to work with Sullivan and Wright, and soon thereafter established his own office in California. He received numerous awards and honors throughout his career including several P/A awards: an honor award in 1949, a Design Award and two citations in 1955, a Special Design Award in City Development in the same year, and another Design Award in 1958.

His surviving son and architectural associate Dion Neutra has submitted the following comments to P/A regarding his father.

In the past several months, he was engaged in a back-breaking schedule of photography of completed structures, the commencement of new research efforts and improvement projects at the Silverlake Research House (Los Angeles), the final editing of a new manuscript, and an American version of the Austrian Ministry of Education's 60-minute documentary film only just completed last year. In addition, collaboration and counseling in the office involved half a dozen new and prospective projects including a new central civic library for Huntington Beach, California; a cultural and recreational center for the Jewish Federation of Omaha, Nebraska; a research facility for the Institute of Antiquity and Christianity in Claremont, California; a number of residences; the completion of the first increment of a 2000-unit garden apartment project in South Africa; the completion of a 30,000 square foot residence in Lahore, Pakistan; and a number of other projects.

My father's death came at the end of a strenuous day of photography of two of our projects in northern Germany. Although those who knew him well had been concerned for years with his tendency to overexert, none of us expected that it would happen at this time.

His oldest collaborator and wife, Dione Neutra (they were married nearly 48 years), dictated the following notes over the transatlantic wire at his death. They have a special significance to me and somehow epitomize what Richard Neutra would have wanted:

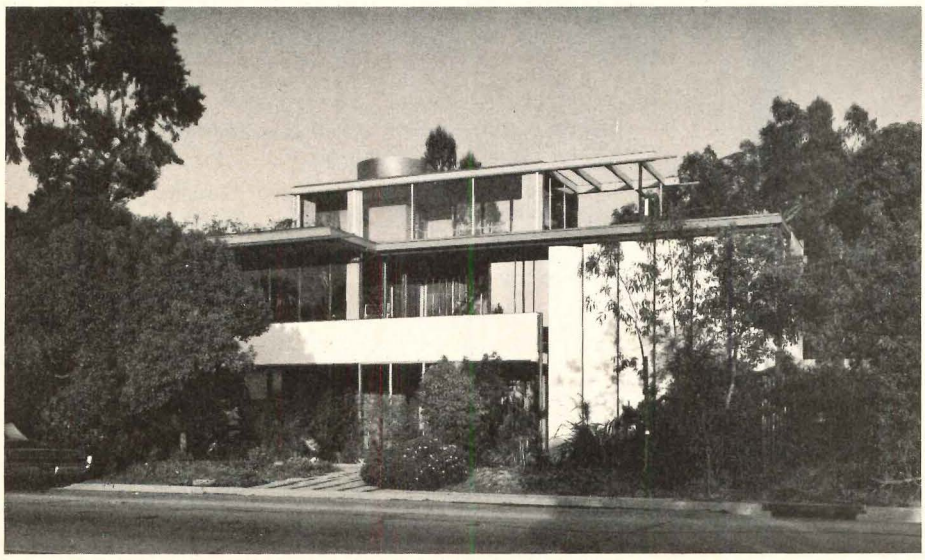
"For as long as his wife and sons can remember, Richard Neutra's greatest desire was to develop a humanistic approach to the planning of the environment and managing of the ecology in the hope that these pioneering ideas would carry beyond his own lifetime and be of lasting benefit to mankind. He coined the expression *biorealism* in contrast to 'dollars per square foot' realism.

"In 1954, his epoch-making book, *Survival Through Design,* was published. He had worked on it during the preceding twenty years, painstakingly developing, an essay at a time, a complex but penetrating insight which today, in its second edition reprinting in soft cover form, only now seems to be understood and heralded.

"As his wife of 48 years and longest collaborator, I fervently hope and pray that Richard Neutra's rich legacy of writings, ideas, and projects will not now mean an ending for his ideals of *Survival Through Design,* but for his sons and faithful followers the opportunity to seize the torch he carried so long and carry on as he would have wished, in a glorious beginning of the *next* fifty years of development and growth of an enlightened scheme for the design for Human Survival."

As long as I can remember, Richard Neutra felt that man's best hope for survival in a self-created chaos would lie in his own inherent ability to design himself out of his "box." He was concerned that a firm scientific basis be found on which to proceed.

Although his early prominence grew out of his sensitivity in the simplest of residential commissions, I feel that his significance is really related to his all-abiding concern for the individual human being who uses the habitations — many of them large-scale structures.



Research House at Silverlake; 1932, (rebuilt after fire, 1966).

Also Deceased

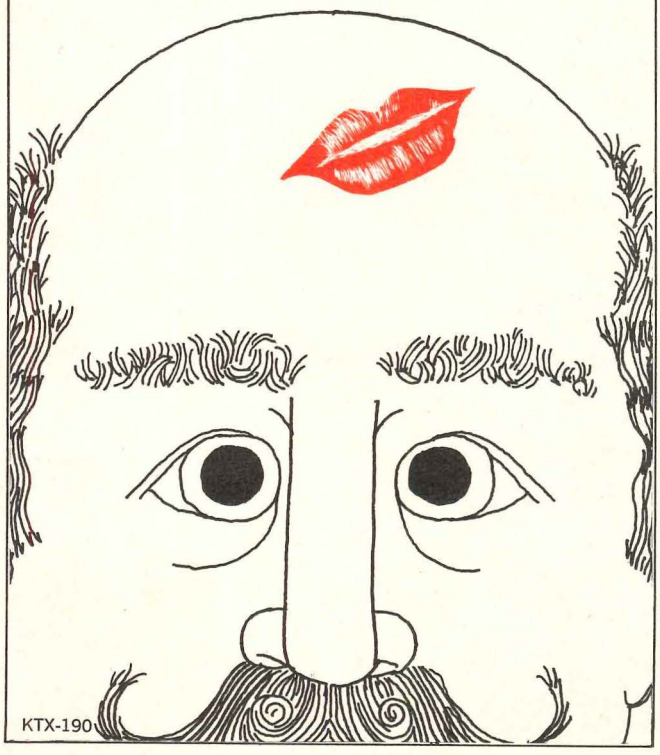
S. B. Zisman, noted city planner and planning consultant, architect, educator, and writer, died in San Antonio on March 25 following a brief illness. A graduate of MIT, Zisman served on the faculty of the school of architecture there for five years. He also was professor of architecture at Texas A & M and the University of Utah, of urban affairs at Trinity University, and of planning at Our Lady of the Lake. His professional work included preparation and development of campus plans for colleges, schools, and universities throughout the country.

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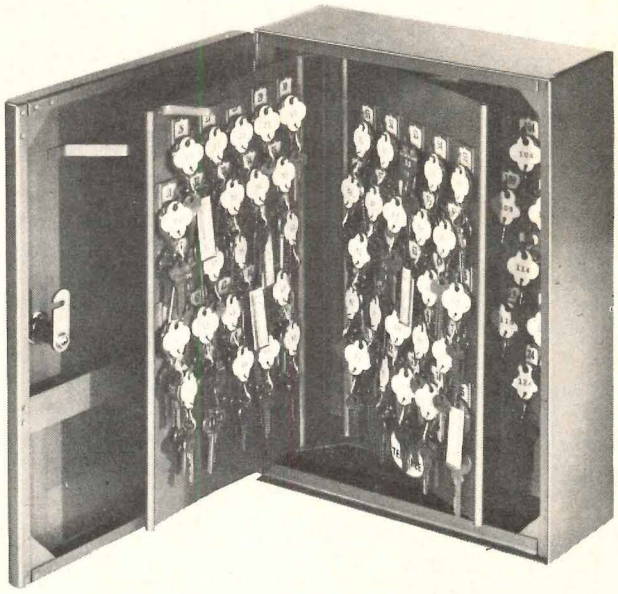
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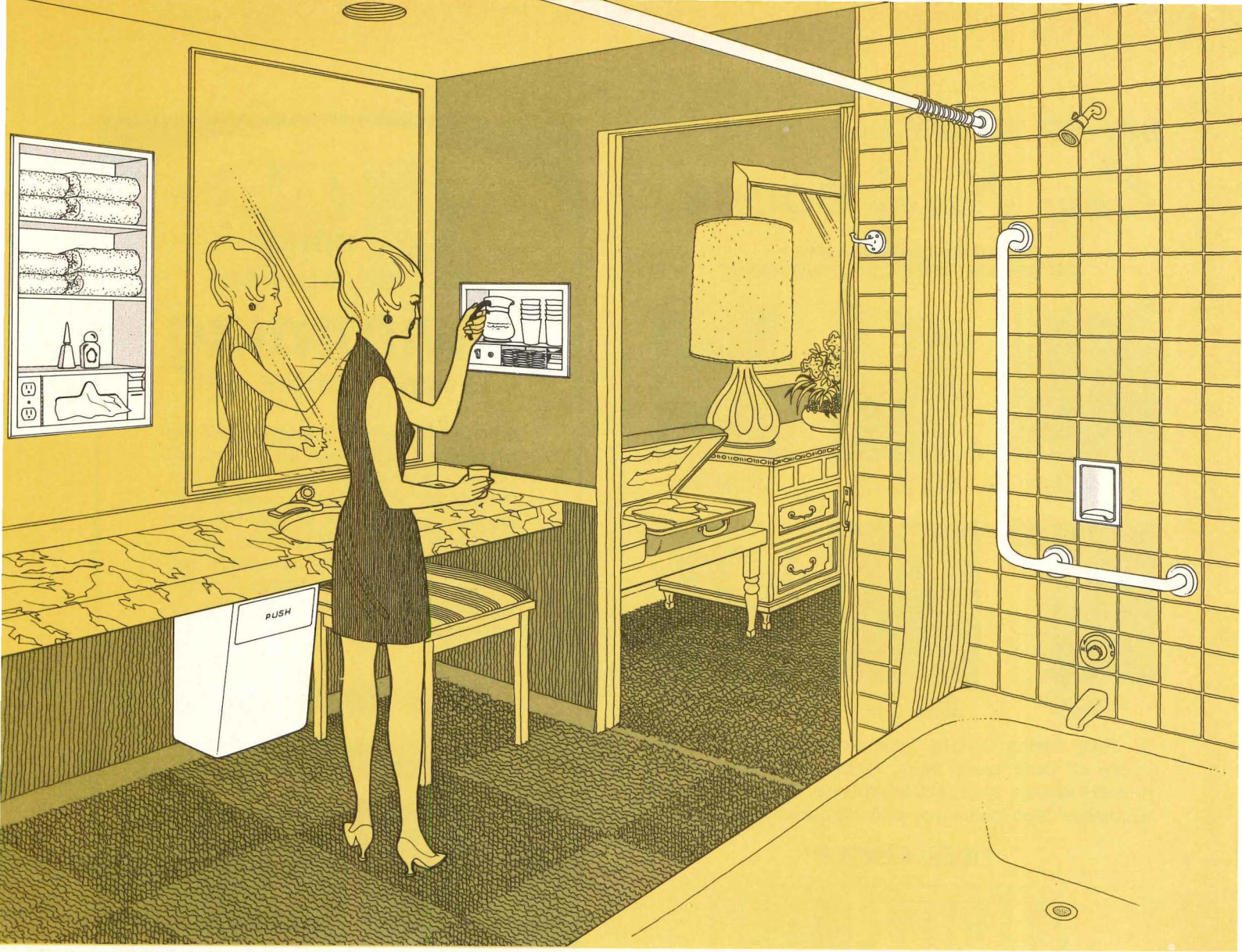
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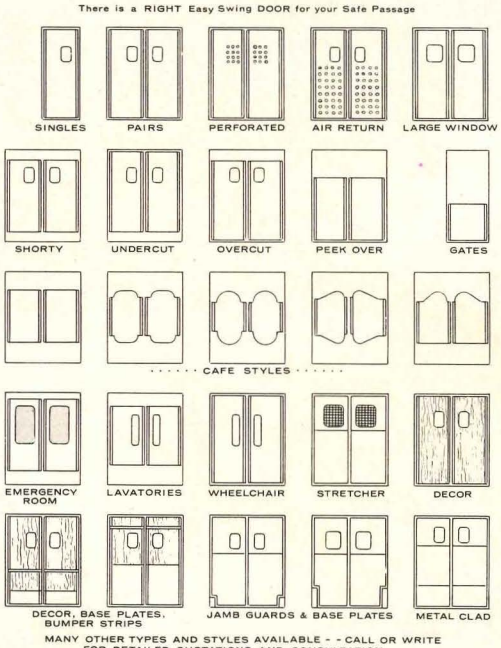
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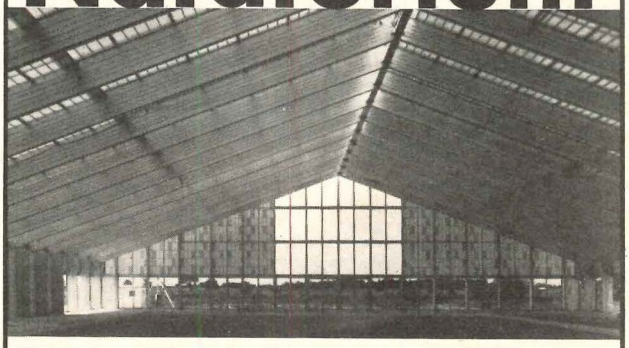
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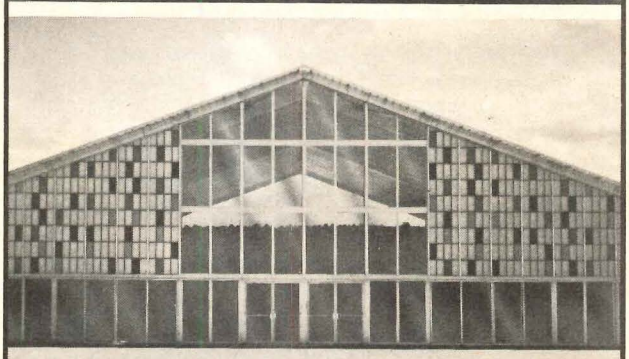


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12 MONTHS OF THE YEAR

Here's the first enclosure designed specifically for swimming pools. Almost half the roof and two-thirds of the sidewalls open to let in Summer's warmth. When closed in colder weather, the translucent emission of light still gives that outdoor feeling. Comfort is assured through an exclusive Pad-Air system that controls heat, humidity and condensation. Modular in design, the enclosure is available to fit any new or existing pool.

The Paddock *Skywall* Natatorium





For free eight page color catalog
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Our 50th Year

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We make a lot of different ceilings to do a lot of different things.

This one accommodates the future.

If the space requirements of this office change, the Armstrong C-60/30 Luminaire Ceiling System above it will handle them. First, interior partitions can be placed and replaced anywhere along Luminaire's grid. Second, if more or less light is needed in a particular area, or if design layout is the issue, flat panels can easily be substituted for lighting modules (and vice versa). In any arrangement, C-60/30 Luminaire offers a variety of air-handling systems, superior sound control, UL-rated fire protection, and sprinkler head adaptability. Your Armstrong representative is in the best position to tell you more about Luminaire and all the other hard-working Armstrong Ceiling Systems. For his name and a copy of our Ceiling Systems folio, please write: Armstrong, 4206 Watson St., Lancaster, Pa. 17604.

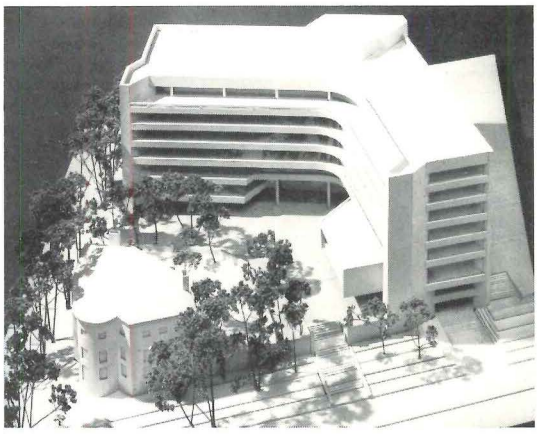
Armstrong CEILING SYSTEMS THAT WORK

Or on Readers' Service Card circle No. 300.

News from the Capitol

BY E. E. HALMOS

AIA announces final version of headquarters



After seven years of hassling with Washington's Fine Arts Commission (and ubiquitous, self-appointed local "experts") the AIA happily announced it had finally received approval for a new headquarters building, and would start work on the seven-story, 130,000 sq ft structure in late fall.

Two previous attempts by the Association to design a building for its somewhat pie-shaped downtown Washington property (a block from the White House) were squelched by the Fine Arts Commission's determination not to have a glass-façaded, modernistic structure surrounding the old Octagon House and clashing with the more classic architecture of the area.

The approved design is the product of The Architects Collaborative of Cambridge, Mass.; it will cost close to $7 million and enclose the 180-year-old Octagon and its gardens in a gently curving structure at the rear of the lot. (See photo.)

Environment Legislation

It was hard to get away from the continuing clamor over "environmental" matters in Washington (proposals now range from establishment of new colleges to study the problem to a bill requiring highway designers to consider air pollution from the highways in their designs) but there were some other things going on as well. For example:

- A new organization — the "National Association of Building Manufacturers" (formerly the Home Manufacturers Association) announced itself in Washington, immediately plumped for a national building code as a means of bringing down housing costs. (NABM insisted on the point that its members are not "prefabricators" — they are manufacturers of anything from components to complete structures.)
- The moribund National Joint Board for Settlement of Jurisdictional Disputes in the construction industry was suddenly revived, with 13 contractor members, plus representatives of the building trades unions, plus some changes in its constitution. But the biggest of the contractor groups — the Associated General Contractors — stayed out (AGC's withdrawal almost six months ago was the proximate cause of the Board's near-demise) on ground that the Board is too heavily labor-oriented; unions pay little attention to its decisions anyway.
- The Transportation department probably foreshadowed actions elsewhere in the U.S., when it "froze" highway work in the Washington area, pending development of "acceptable" plans for minority hiring.
- AIA charged (before a Congressional committee) that American Indians — and taxpayers — are being "shortchanged" on buildings designed by the Bureau of Indian Affairs, suggested the Bureau's design staff be "reduced" and most design work given to private firms.

Financial Notes

Despite some hopeful signs, the state of the economy (highlighted by late-April stock market slides) was very near the top of Washington worries.

It was more than bothersome for instance, that interest rates — after a slight hesitation — seemed to be rising again. Home mortgage costs topped 8.5 percent, for example; cost of bank loans stayed high; the bond market (even for tax-free municipals) stayed high and tight.

Reflecting these facts, housing starts continued to lag — in March, they were up a little from the previous month, at 1,383 million units — but still well below the 1969 rate of 1,588 million. The situation prompted Administration spokesmen to take serious note of the booming mobile-home field (now hitting an annual pace of 450,000 units) as a possible means of achieving national housing goals. A sidelight was the fact that sales of new one-family homes in February were at a seasonally adjusted annual rate of 377,000 units — down 16 percent from January, and 29 percent below a year ago.

Personalities

Ada Louise Huxtable, architecture critic of the New York Times, has been announced the *first* winner of the Pulitzer Prize for distinguished criticism, a category new this year to the 54th Annual Pulitzer awards.



Ada Louise Huxtable

. . . **Louis Kahn** was presented the 1970 Medal of Honor by the New York Chapter of the AIA on May 4. . . . **Kenzo Tange,** internationally known architect, historian, city planner, and educator who designed the Master Plan for Expo '70, will receive the University of Virginia's **Thomas Jefferson Memorial Foundation** medal in architecture. . . . The winners of 17 **Rome Prize Fellowships** were announced today by Rensselaer W. Lee, president of the American Academy in Rome. Among them were Myron A. Guran and Peter Schmitt for architecture; Robert R. Dvorak and June Meyer Jordan for environmental design; and Peter M. Pollack and Charles A. Rapp for landscape architecture.

Calendar

The 2nd National Exposition of Contract Interior Furnishings sponsored by the Merchandise Mart, in Chicago, will take place June 17–19. . . . **The 20th Annual Summer School Planning Institute, "Flexible Learning Environments-Planning and Utilization"** will be sponsored July 6–10 by Stanford University, Stanford, Calif.

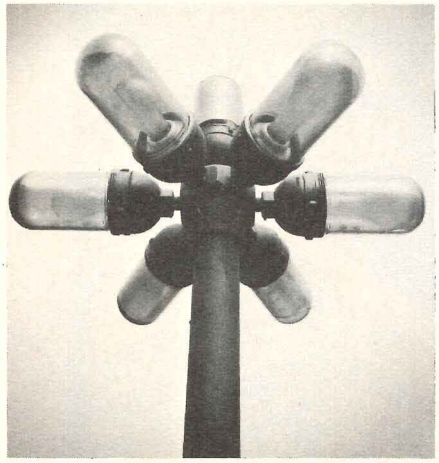
Competitions

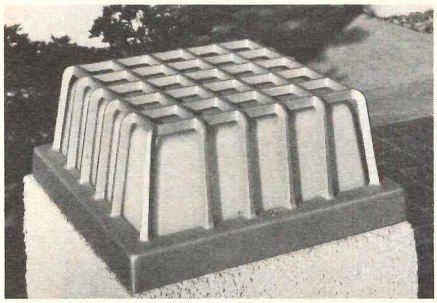
Entries will be accepted until July 1 for the 1970 **Prestressed Concrete Institute Awards Program.** An illustrated review of past PCI award-winning structures may be obtained from, and entries should be mailed to: Prestressed Concrete Institute, 205 Wacker Drive, Chicago, Ill. 60606.

News Photo credits:

p. 43 Peter M. Warner (top left)
p. 45 Photos courtesy of City Planning Dept., Minneapolis
p. 48, 49 Photos courtesy of The Metropolitan Museum of Art, Kevin Roche, John Dinkeloo and Associates, 1970
p. 54 Photo: Gil Amiaga
p. 57 Photos courtesy of Richard and Dion Neutra Architects and Associates (Top and bottom left)
Photo: Julius Shulman
p. 62 Photo: Robert Harvey (Left bottom)
N.Y. Times Studio (Top right)

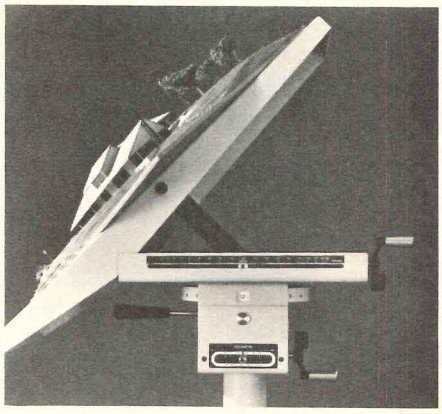
PRODUCTS & LITERATURE





POD Possibilities

POD, Inc., a landscape and architectural firm in Orange, Calif., has devised some interesting ideas for industrial lighting fixtures. Illustrated are standard, watertight shower fixtures, turned upside down, that lend themselves to outdoor architectural lighting.
Circle 100 on Readers' Service Card

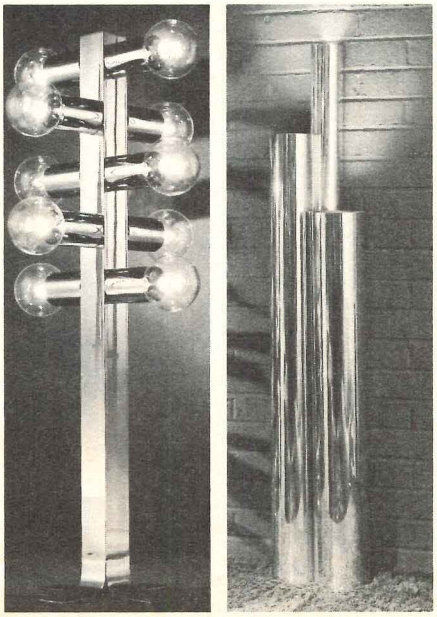


Shadow Calculator

The Heliolux is an instrument that facilitates the simulation of three-dimensional shadow patterns on an architectural model. It can be adjusted to make a 650-watt sun cast shadows simulating any time of year, and has separate controls to set the latitude, hour of day, and declination for anywhere on earth.
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Masonry Wall Reinforcement

The Dur-O-Wall Co. offers its brochure of masonry wall reinforcement to the building trades. The catalog deals with reinforcement methods and includes such construction details as corners, tees, vertical support rods, and composite wall construction.
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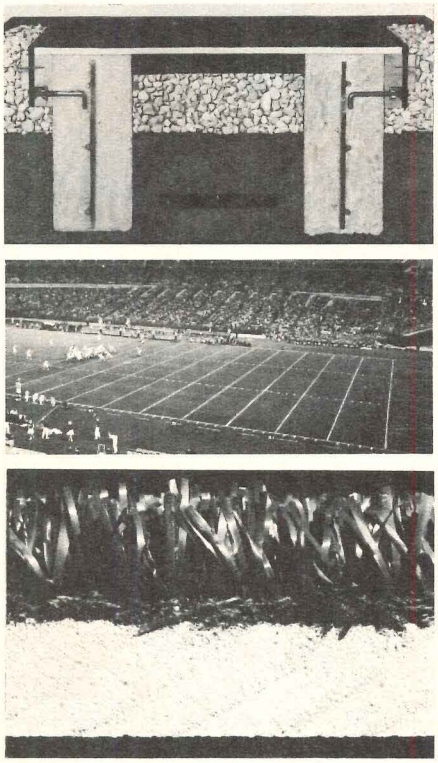


Modern Lighting

Koch & Lowy Inc. has published a 124-page catalog of one of the most comprehensive collections of modern lamps and lighting. Included are designs by Enrico Capuzzo, Corrado Cocconi, Gino Vistosi, and Alessandro Pianon of Italy; E.R. Nele and Robert Haussman of Switzerland; Preben Dal of Denmark; and Pat Hoffman of the United States. The catalog may be obtained by letterhead request to Koch & Lowy, 11–11 40 Ave., Long Island City, N.Y. 11101.
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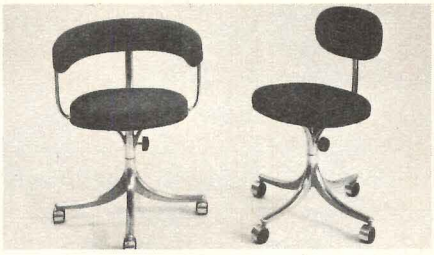
Architectural Acoustical Materials

The 1970 Performance Data Report by the Acoustical and Insulating Materials Association includes sound absorption coefficients, sound attenuation factors, and ceiling STC's, flame spread classifications, and fire endurance time ratings. An invaluable aid to engineers and architects, the bulletin includes the product information of National Gypsum, Celotex, Armstrong Cork, Johns-Manville and many more.
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Plastic Grass

Monsanto Chemical Corp. is distributing literature on its Chemgrass and Astroturf. Both Chemgrass and Astroturf are synthetic forms of grass said to have all the beauty of real grass without the problems of fertilizing, mowing, and watering. It appears that what began as a superior surface for athletic fields seems to have spread into the field of landscaping.
Circle 105 on Readers' Service Card



Danish Desk Chairs

Knoll International has introduced a new line of office desk seating designed by Danish architect Jorgen Rasmussen. The aluminum frame chair is fitted with double casters, and easily removable, Helleknit covered cushions, which are clipped on to a plastic seat and back attached to the framework. Knoll is currently stocking the chair with cushions in six colors of the upholstery fabric to facilitate rapid delivery.
Circle 106 on Readers' Service Card

(More products on page 216)

MUST READING
for Architects and Engineers who design
SWIMMING POOLS



KDI Paragon has just put together an unusual Portfolio of outstanding new swimming pool installations by Architects and Engineers from around the world. Each sheet in the kit is a complete case history of a unique solution to a pool design problem – and gives you full construction and equipment details. If you design or specify residential, institutional or commercial swimming pools you'll want your own copy of this Professional Pool Portfolio for reading and reference. Drop us a line on your letterhead.

On Readers' Service Card, Circle No. 364

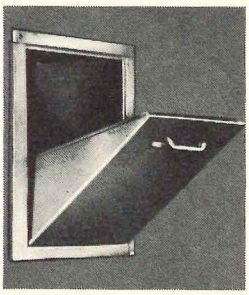
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HOW TO OBSOLETE A NEW MULTI-STORY BUILDING *FAST!*



Don't install centralized disposal

A storage room on each floor of the building may hide rubbish, garbage, soiled linen, or paper until removal; but it can't hide tenant discontent, added janitorial costs and inconvenience.



Modern buildings need modern Wilkinson centralized disposal chutes with noiseless self-closing intake doors, electrically controlled sprinkling and flushing, effective disinfecting and sanitizing.

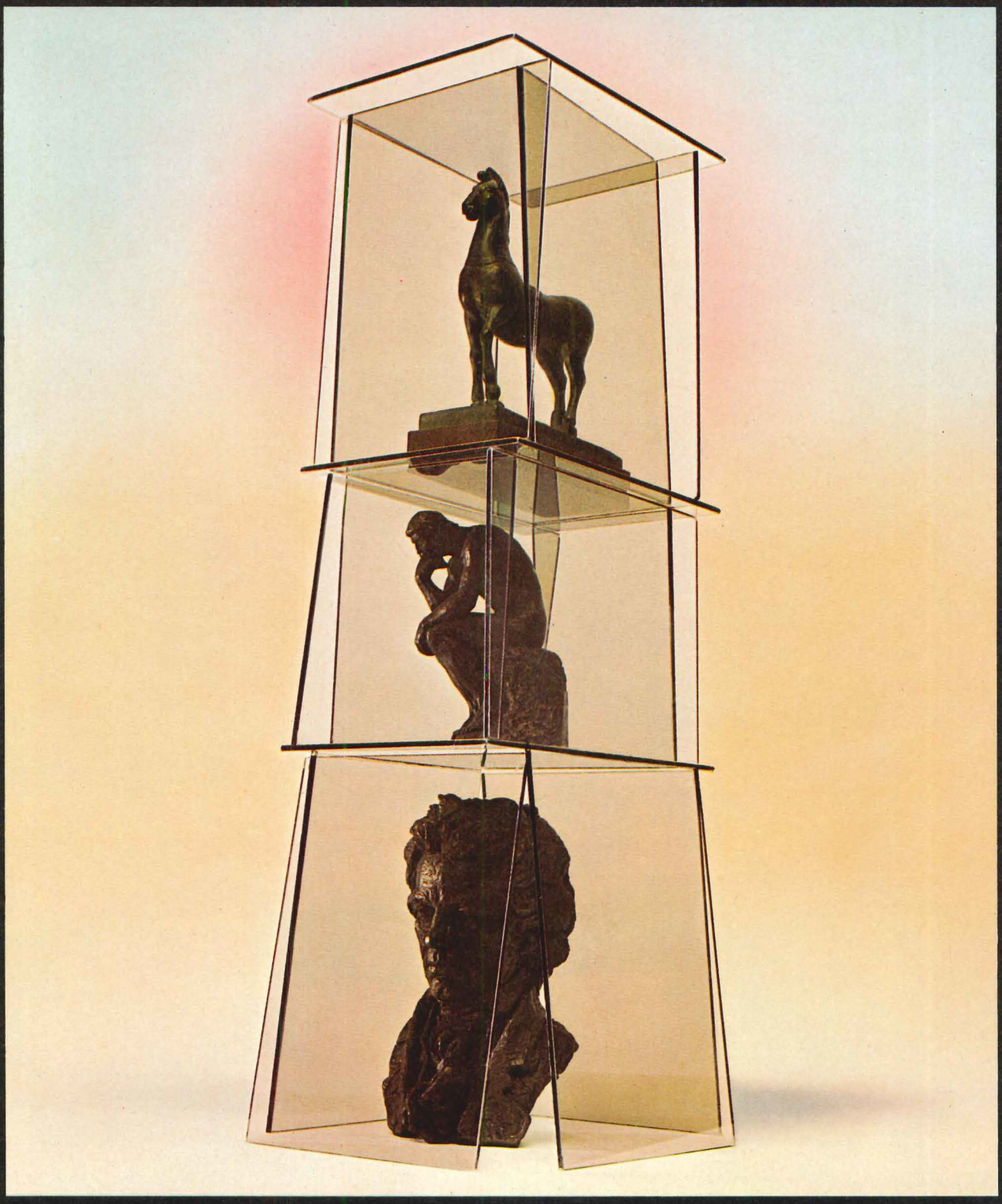
Wilkinson Chutes, prefabricated at the factory for low-cost installation, mean long-lasting economies for building owners by efficient centralized disposal.

See our catalog in Sweet's Architectural File

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WILKINSON CHUTES (Canada) LTD.
9 Dwight Ave. Toronto 14, Ontario, Canada

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The New Bronze Age.

Glaverbel Bronze: A glass for all seasons.

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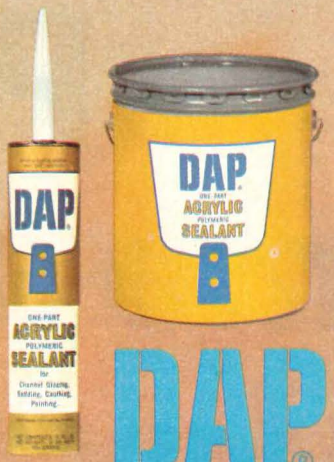


INNOVATION IN DESIGN. One of a series created for DAP Architectural Sealants. Design and rendering by Richard P. Howard Associates, Architectural Illustrators, Sylvania, Ohio. Harold R. Roe, A.I.A.

adaptability

The real test of any sealant is its ability to stay on the job —and up to the job—in spite of omissions and errors in joint preparation. DAP one-part Acrylic terpolymer Sealant is designed specifically to achieve design adhesion in hard-to-reach joints where application instructions may be slighted. It resists hardening, shrugs off the effects of wind and weather. It reseals itself, thus adding a dimension in protection beyond the scope of elastomerics. For condensed catalog on this and other outstanding DAP architectual sealants, please write: DAP Inc., General Offices: Dayton, Ohio 45401. Subsidiary of *Plough, Inc.*

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DESIGN CONCEPT. This university library, a simple statement executed in sandstone, becomes the center of an academic area by offering access from neighboring facilities on two separate levels. The library design expresses the newest thinking in educational buildings without overpowering existing structures.

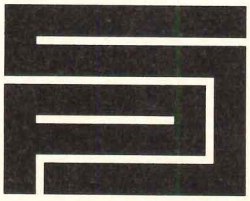
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P&S

You know *what* the devices will have to take. P&S knows *how* to meet that need . . . with the broadest line of top quality wiring devices in the industry. Specify P&S devices all the way, from residential to industrial. For devices that can really take it, rely on P&S . . . the *specialists* in wiring devices. For more information write Dept. PA-670.



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It's Zonolite® Mono-Kote, the compound that fireproofs steel and concrete. And does it so well that its fire-resistance ratings range up to 5 hours, depending on the structural system it's part of.

Mono-Kote comes ready to use. Just add water. And spray. It pumps easily—as high as 50 stories. Goes on fast. Delivers a bond strength of more than 500 pounds per square foot.

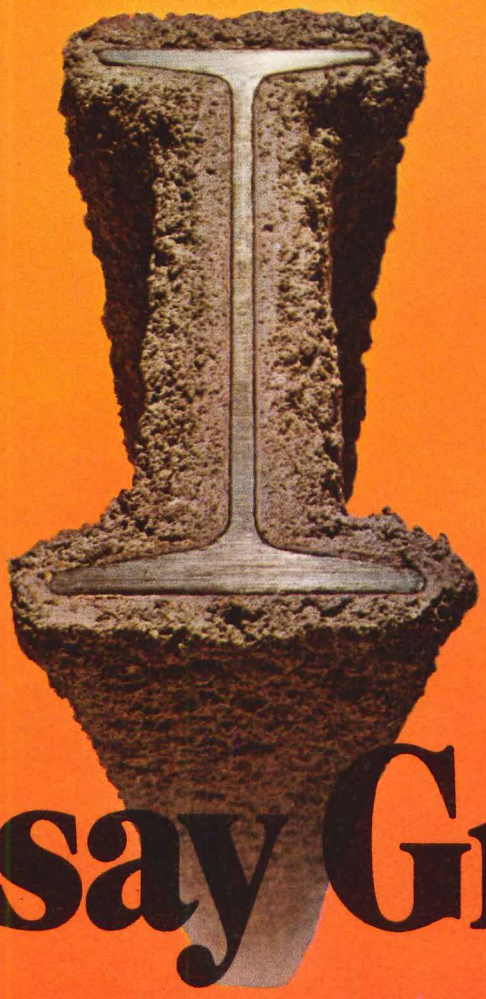
Other features? Indeed! Like zero erosion, after being tested in 100 m.p.h. winds for 87 hours. Result: no "dusting" in air-conditioning and ventilating systems. Also, its use permits reduction in the thickness of concrete floors. Cost? Very little.

Want all the facts and figures from the Zonolite fireproofing experts? Say the word.

ZONOLITE

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GRACE



Just say Grace.

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Bright idea



Space-saving showers that never squeeze people!

Bradley Column Showers serve more people in less space than ordinary showers. They squeeze maximum use from every inch of available floor space. But Bradley Columns never squeeze people. Shower patterns leave *plenty* of room between bathers. Bradley Columns offer other important savings. They serve up to 6 people with one set of plumbing connections, cutting installation costs as much as 80%! Bright idea: put the squeeze on building costs. Put Bradley Column Showers into your shower room plans. See your Bradley representative. And write for literature. Bradley Washfountain Co., 9109 Fountain Blvd., Menomonee Falls, Wis. 53051.

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from Bradley!

BRADLEY

50 Years With Pencil Points and P/A

The advertisements in the next pages are those of building products manufacturers who, in a very real sense, were charter advertisers in *Progressive Architecture.* They are manufacturers whose message to the architectural profession were in the first 100 issues of *Pencil Points*—P/A's original title.

Progressive Architecture salutes these manufacturers, and countless others, who through the years have made a very honest effort not only to manufacture products of the highest quality, but who have also made an honest effort to keep the profession aware of new materials, new applications, new opportunities. P/A is proud to show you many of the original ads of the early and mid-20s to contrast with advertising of the same manufacturers today. P/A is proud to have been a part of the growth of this industry—the country's largest—a partnership with the architectural profession and the manufacturer. We're now looking excitedly to the next 50 years—

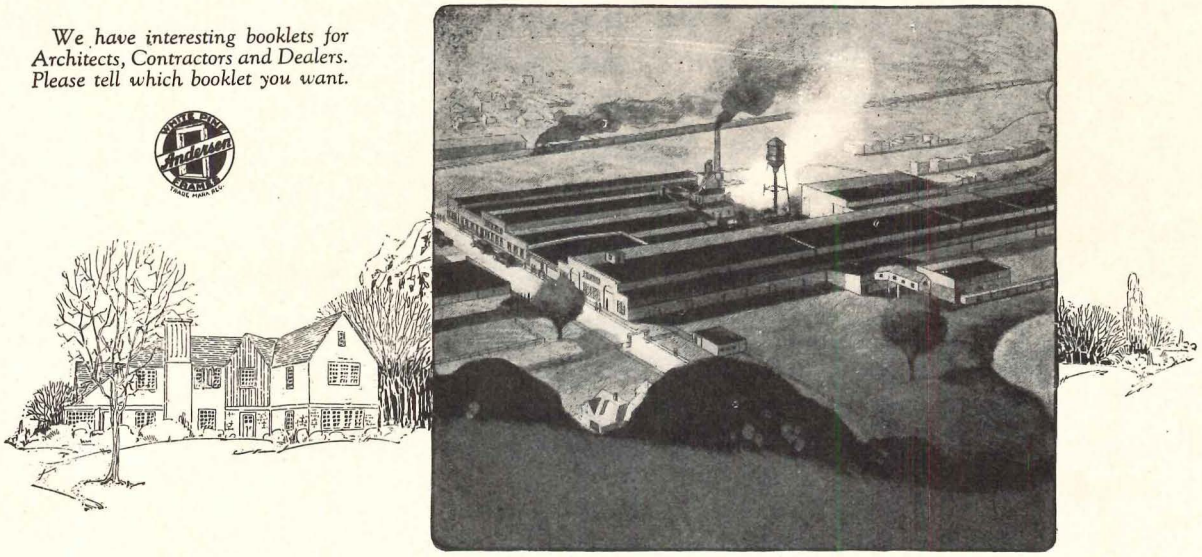
P. H. Hubbard, Jr.
PUBLISHER



On the shelves of the *Progressive Architecture* library, in Stamford, Connecticut, there are yards and yards of bound volumes of P/A beginning in June 1920 and continuing through December 1969. The various thicknesses of these volumes, which are bound in January-June and July-December intervals, reflect the cyclical nature of the American economy and in turn reveal the relative prosperity or inactivity of the architectural profession, as well as that of the magazine itself. The unusual individual widths of the 1920s, 1950s, and 1960s contrast sharply with the leanness of the 1930s and 1940s. One not familiar with publishing would probably not be aware of the fact that of the total number of pages in the last 50 years, 60 percent are advertising pages while 40 percent are those that have been created and prepared by the editorial staff of the magazine. This empirical ratio has been used over the decades by publishers of professional journals and, when maintained, normally provides a satisfactory margin of profit for the publishing house. There are many of our readers who believe that subscription fees substantially contribute to the monetary success of a business paper. It could be pointed out, however, that paid subscriptions generally account for only one-third of the costs of production and of circulation operation (promotion and fulfillment). All additional expenditures, including salaries, research, promotion, and overhead must be borne by the income from advertising. Ironically, almost any readership survey will contain a number of critical replies decrying "too many ads!" One may imagine a publisher's reaction to this kind of observation. The point of all this introduction is to firmly establish the role that building product advertisers have played in the drama of financially helping the publishers and editors to be able to present material of interest and value to the architectural profession. On the following pages, you'll find 23 advertisers who appeared in the first 100 issues of *Pencil Points* (P/A's parent organization) and who not only are still in the building construction business, but also are loyal advertisers in *Progressive Architecture.* Both original and contemporary presentations are shown. All members of P/A thank these manufacturers, as well as all others who have appeared in this magazine, for their loyal patronage over the decades, and sincerely hope that they (and we) may be able to participate in a similar venture in 2020 A.D.

THE EDITORS

We have interesting booklets for Architects, Contractors and Dealers. Please tell which booklet you want.



Enormous Demand For Andersen Frames

DURING 1923 there were 50% more Andersen Window and Door Frames used than ever before. This shows how enthusiastic architects, contractors and dealers are about a standard frame of White Pine that will give lasting satisfaction to the home owner. The support of all classes of builders has made Andersen Frames the best known, and the Andersen frame factory the largest in the world.

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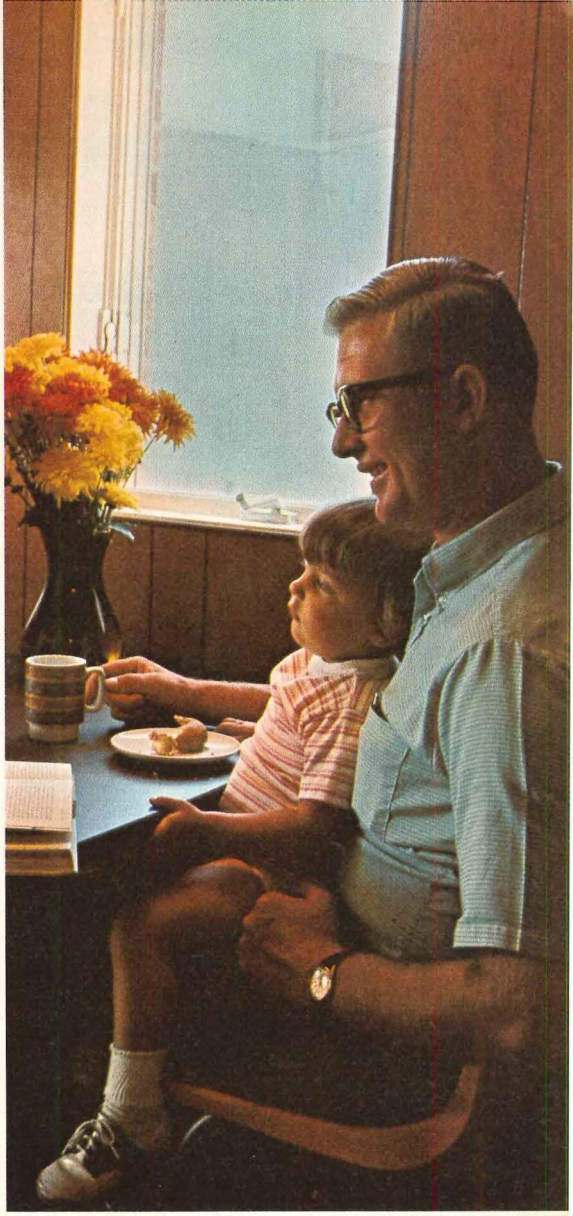
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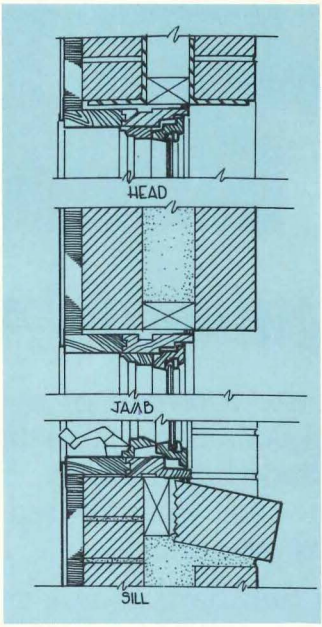
Andersen Lumber Company

Dept. N-1 **Bayport, Minnesota**

Andersen FRAMES







Montanans love wide open spaces.

[but not between their sash and frames]

This is Big Sky Country. Where a view is a 150-mile-wide panorama. Where a man comes to grips with his insignificance.

Where everything's scaled a bit larger. Including the weather. Make no mistake about it. Montana gets cold. Bone-chilling cold.

And sometimes the wind comes cascading down from icy mountain slopes. Paint-peeling hard it blows.

If an architect finds a product that won't knuckle under to weather like that, he remembers it. He *looks* for places to use it.

That's what prompted the architects to choose Andersen Perma-Shield® Casement Windows for this Montana State University married student housing project.

They could install them, the college maintenance staff could forget them. Because their vinyl exterior just doesn't need paint.

Being casements, they wouldn't steal room space from active, growing families. They'd provide top-to-bottom ventilation.

Most importantly, they'd seal out those howling winter winds . . . yet beautifully frame a view and help bring some Montana magnificence indoors.

Remember Andersen Perma-Shield Windows. You'll find lots of places to use them. And get acquainted with the five other types and hundreds of sizes you'll find at your Andersen dealer or distributor.

Building: Married Student Housing
Montana State University, Bozeman, Montana

Architect: McIver & Hess, AIA
Great Falls, Montana



Andersen Windowalls™

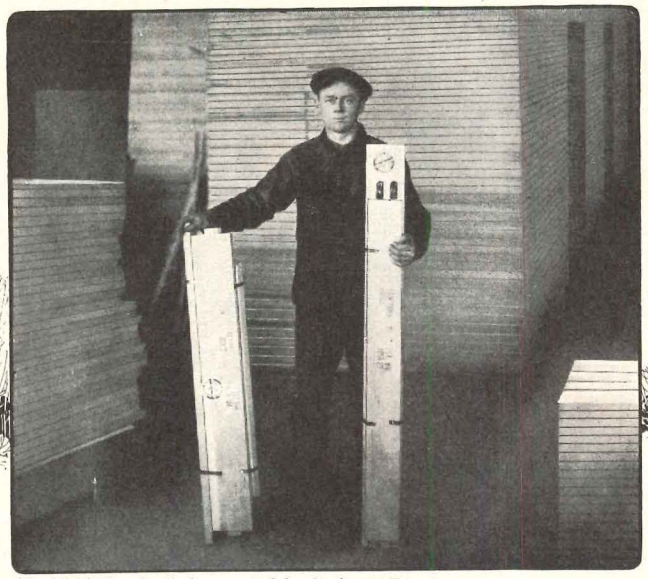
Window Beauty is Andersen

ANDERSEN CORPORATION • BAYPORT, MINNESOTA 55003

On Readers' Service Card, Circle No. 323

We have interesting booklets for Architects, Contractors and Dealers. Please tell which booklet you want.





Mr. Noble Rowland, foreman of the Andersen Frame Department, joined our force December 14, 1908.

The Four Millionth Andersen Frame

ON April 11th the foreman of our frame department will inspect the 4,000,000th Andersen Frame. For sixteen years he has watched the Andersen factory grow to be largest in the world. He has contributed toward this success by raising its standard of quality.

The Andersen Standard Frame owes its leadership to the many men who are spending the best part of their lives in maintaining this standard.

Reasons Why Andersen Frames Are Preferred:

1. Immediate delivery—no expensive delays waiting for special frames.
2. 121 sizes ready for every purpose.
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7. Modern machinery, methods and specialization lower costs at the factory; quickness of assembly saves you time, labor and money on the job.
8. Better results in frame, brick or stucco buildings.
9. White Pine preserves original accuracy and gives continuous service.
10. Made by largest exclusive standard frame manufacturer. The trade-mark is absolute protection.

Andersen Lumber Company

Dept. N-4 **Bayport, Minnesota**

Andersen FRAMES

How Andersen Windows helped Lasell Jr. College keep its Boston accent.



Lasell Jr. College for girls nestles quietly in the rolling west-Boston suburb of Auburndale—a heavily-wooded community filled with sturdy old New England "sheds" and genteel Georgian Colonials.

It was for this setting that a Boston architect designed a strikingly simple new dormitory and library.

It was for this setting that he chose Andersen Windows.

The natural beauty of our wood casements and awning-style windows worked in perfect harmony with traditional Boston brick.

In a quiet, stately way, Andersen Windows also helped the architect relate his new contemporary designs to the older campus buildings and surrounding private homes.

And finally, Andersen Windows appealed to the architect's plain old Yankee common sense. (Any windows that are built to such close tolerances that you get as much as a 15% fuel saving just *have* to make sense for Boston!)

Fact is, Andersen Windows make sense anywhere. For all the details, see your nearest Andersen distributor or dealer. Or check your Sweet's Catalog.

Architects: Steffian, Steffian and Bradley, Inc., Boston, Massachusetts

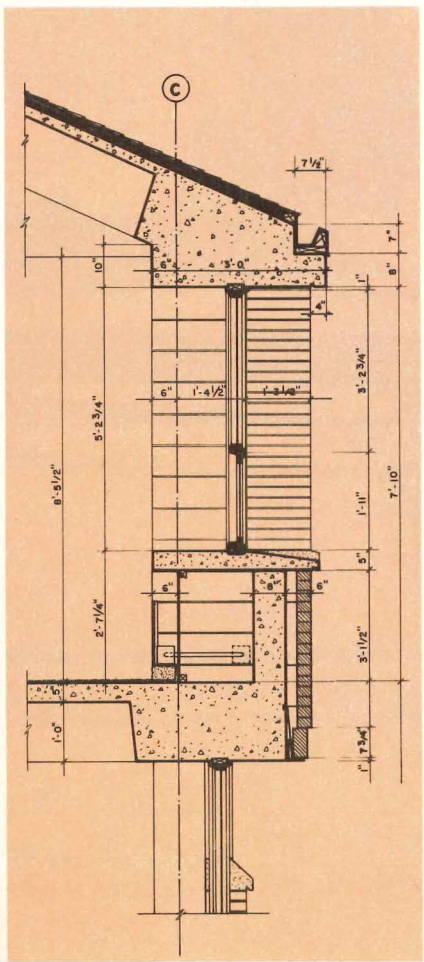
AW®

Andersen Windowalls™

Window Beauty is Andersen

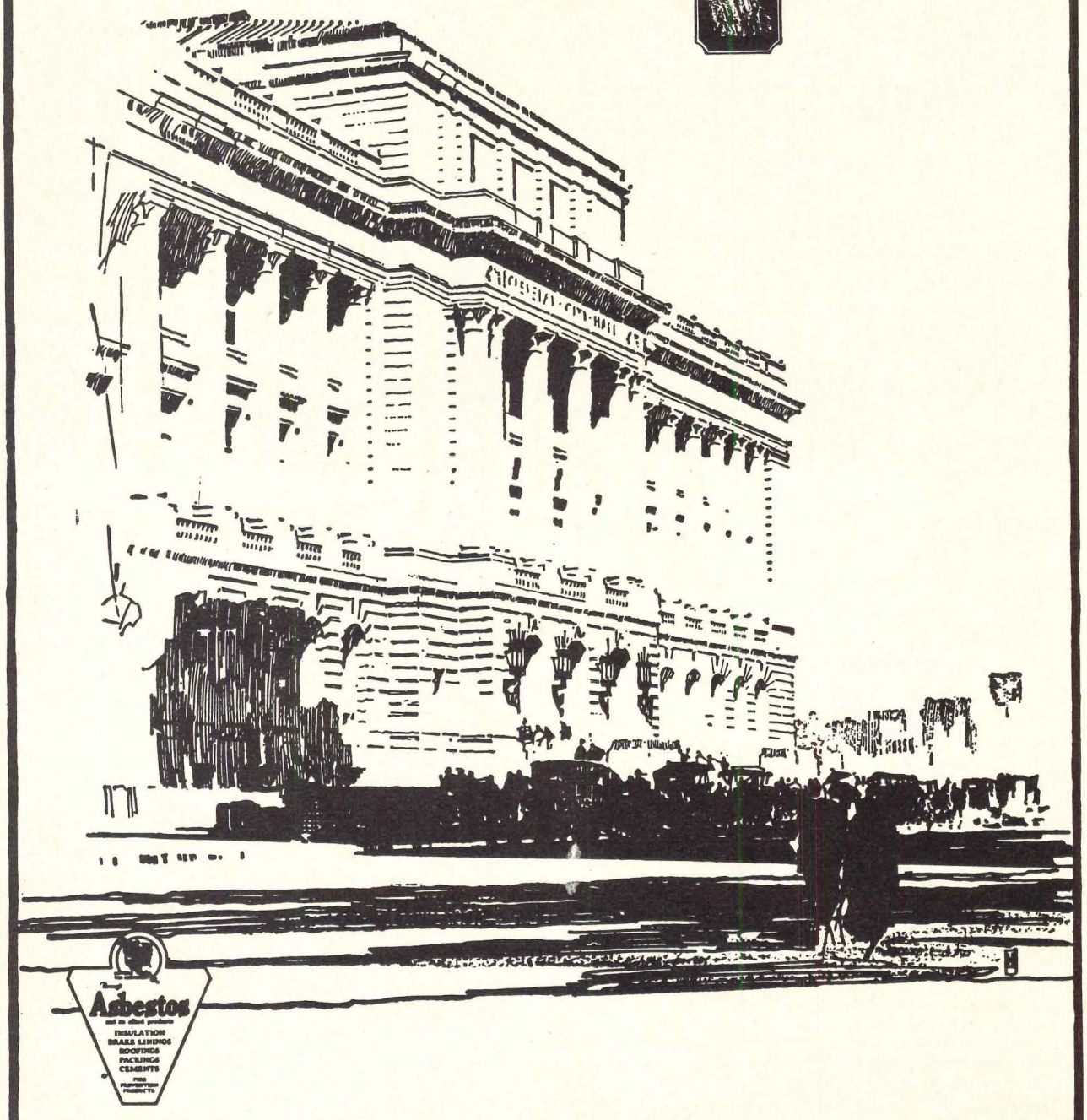
ANDERSEN CORPORATION • BAYPORT, MINNESOTA 55003







SPECIFY JOHNS-MANVILLE ASBESTOS ROOFING

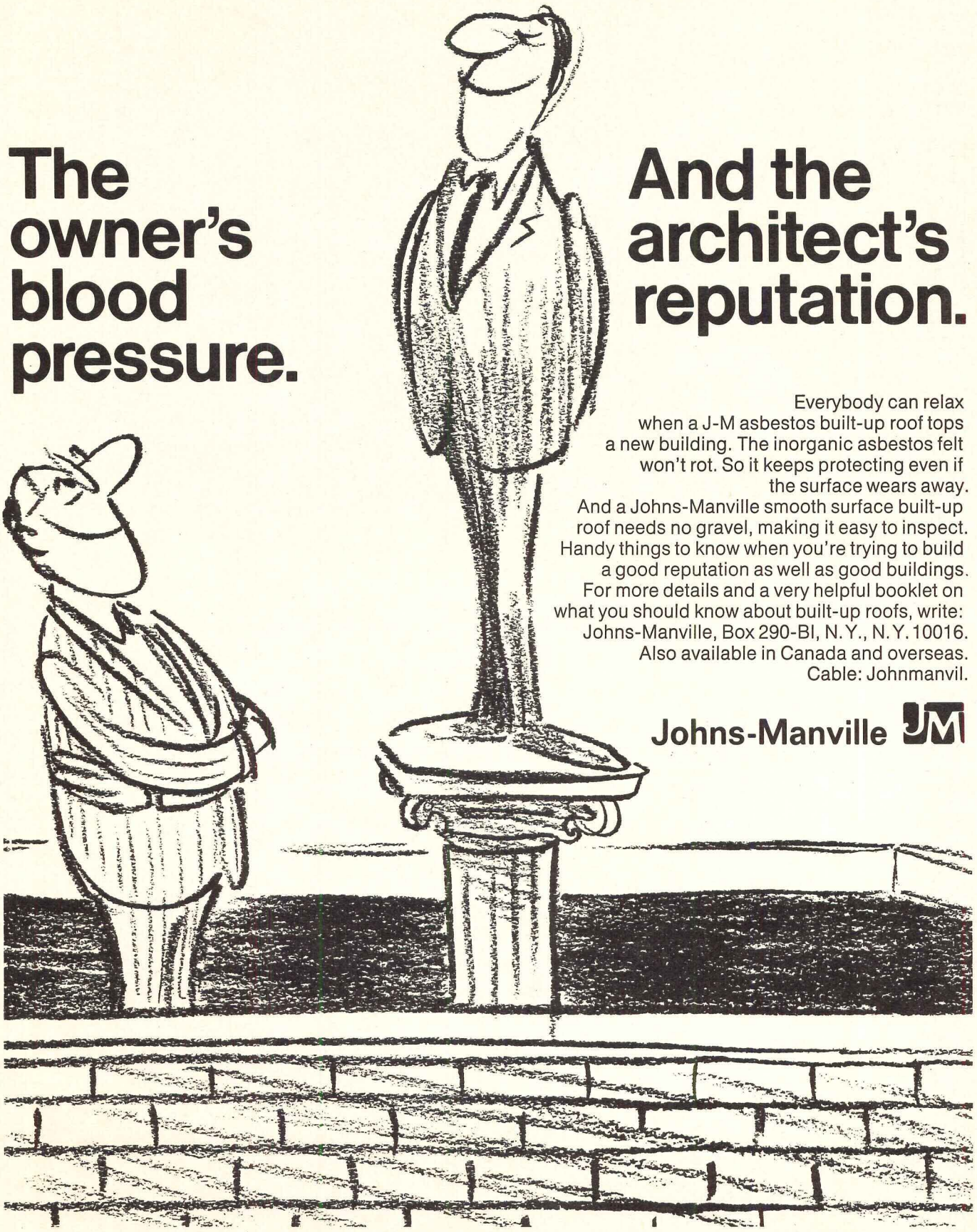


JOHNS-MANVILLE ASBESTOS ROOFING · CLEVELAND CITY HALL · CLEVELAND · OHIO · J MILTON DYER · ARCH.

A J-M asbestos long-life roof protects two things.

The owner's blood pressure.

And the architect's reputation.



Everybody can relax when a J-M asbestos built-up roof tops a new building. The inorganic asbestos felt won't rot. So it keeps protecting even if the surface wears away.

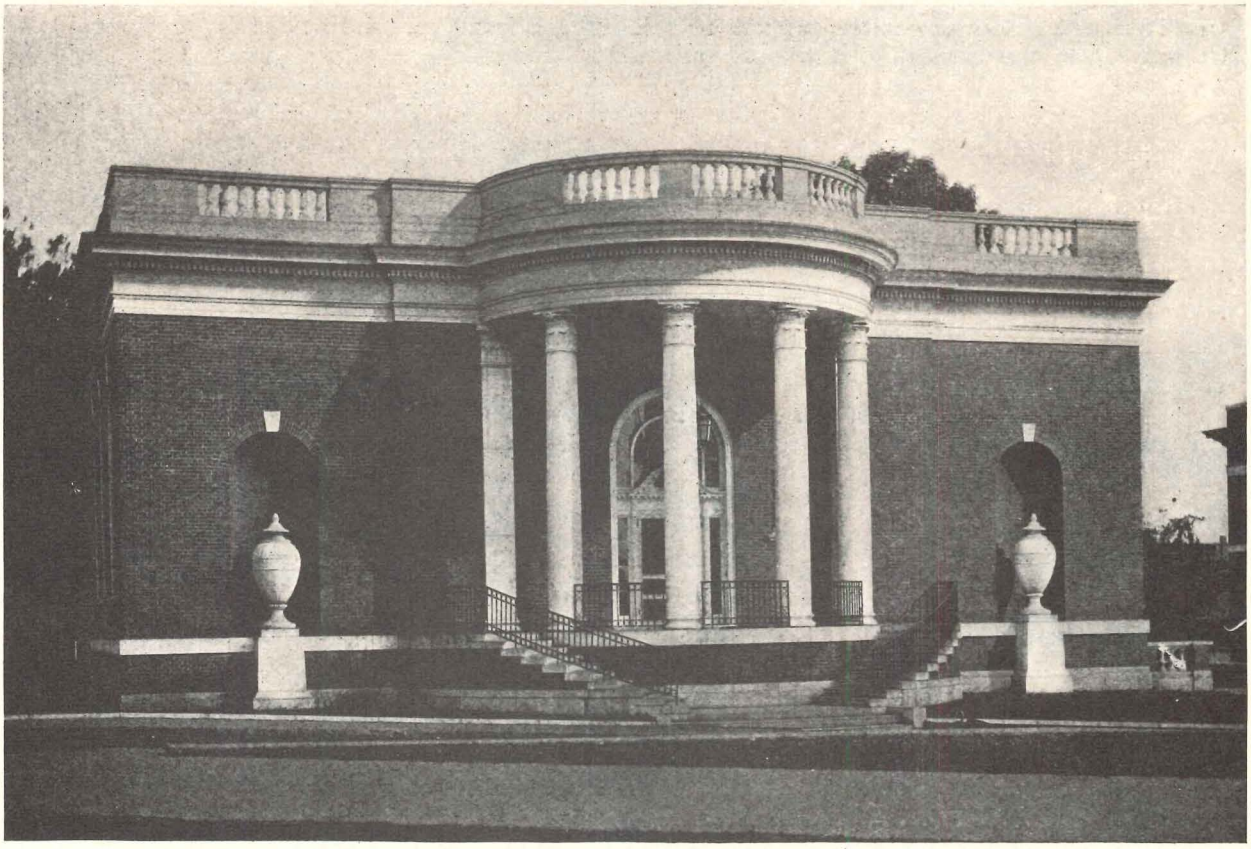
And a Johns-Manville smooth surface built-up roof needs no gravel, making it easy to inspect.

Handy things to know when you're trying to build a good reputation as well as good buildings.

For more details and a very helpful booklet on what you should know about built-up roofs, write: Johns-Manville, Box 290-BI, N.Y., N.Y. 10016.

Also available in Canada and overseas. Cable: Johnmanvil.

Johns-Manville JM



CHARLOTTESVILLE, VA., LIBRARY — WALTER D. BLAIR, Architect

A Pleasing Use of Georgia Marble for Portico Columns and Trim

By using white marble for the important features of the building, as shown in the above illustration, the maximum value is obtained for the minimum expenditure.

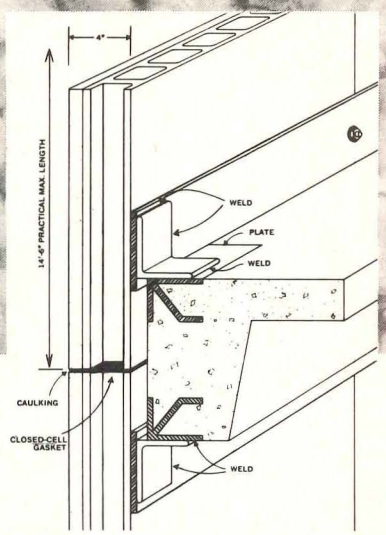
THE GEORGIA MARBLE CO.

TATE, GEORGIA

Monadnock Building, Chicago — 1328 Broadway, New York

SCOTWALL

Now available in both marble and aggregate



The new Scotwall, first introduced with marble veneer, is now also available with virtually any kind of aggregate facing. The asbestos-portland cement substrate is the same in both cases. The Scotwall panel is a lightweight, moisture-proof, unit of great strength and remarkable versatility. It recommends itself for interior and exterior walls; large soffits and ceiling panels; multi-faced fin panels; free-standing partitions; screens; fasciae; spandrels and a lot more. It's light to ship, quick to install, and the in-place cost can be under that of less desirable materials. May we tell you more about it?

WRITE FOR YOUR COPY OF THE NEW SCOTWALL BROCHURE

THE INNOVATORS IN STONE PRODUCTS

Georgia Marble Company

11 PRYOR STREET, S.W., ATLANTA, GEORGIA 30303

A subsidiary of Jim Walter Corporation

COAST-TO-COAST CONSULTING SERVICE—Our engineers stand ready to assist you any time anywhere on any project involving marble or limestone. A phone call will put one of our men across the desk from you in a matter of hours. Phone 404/688-2861.

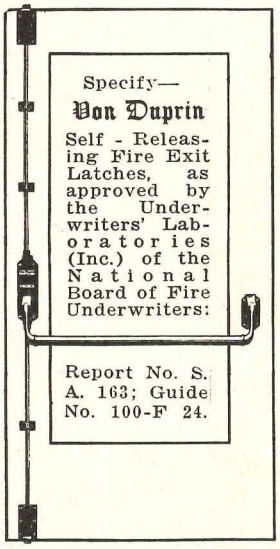
MARBLE INSTITUTE OF AMERICA

On Readers' Service Card, Circle No. 349

Von Duprin

Self-Releasing Fire Exit Latches

As Good As It Looks



Will that school house, that theatre, that factory of yours be as good as it looks?

On the outside it seems everything that such a building should be; it has dignity; it looks substantial—and safe.

Is it?

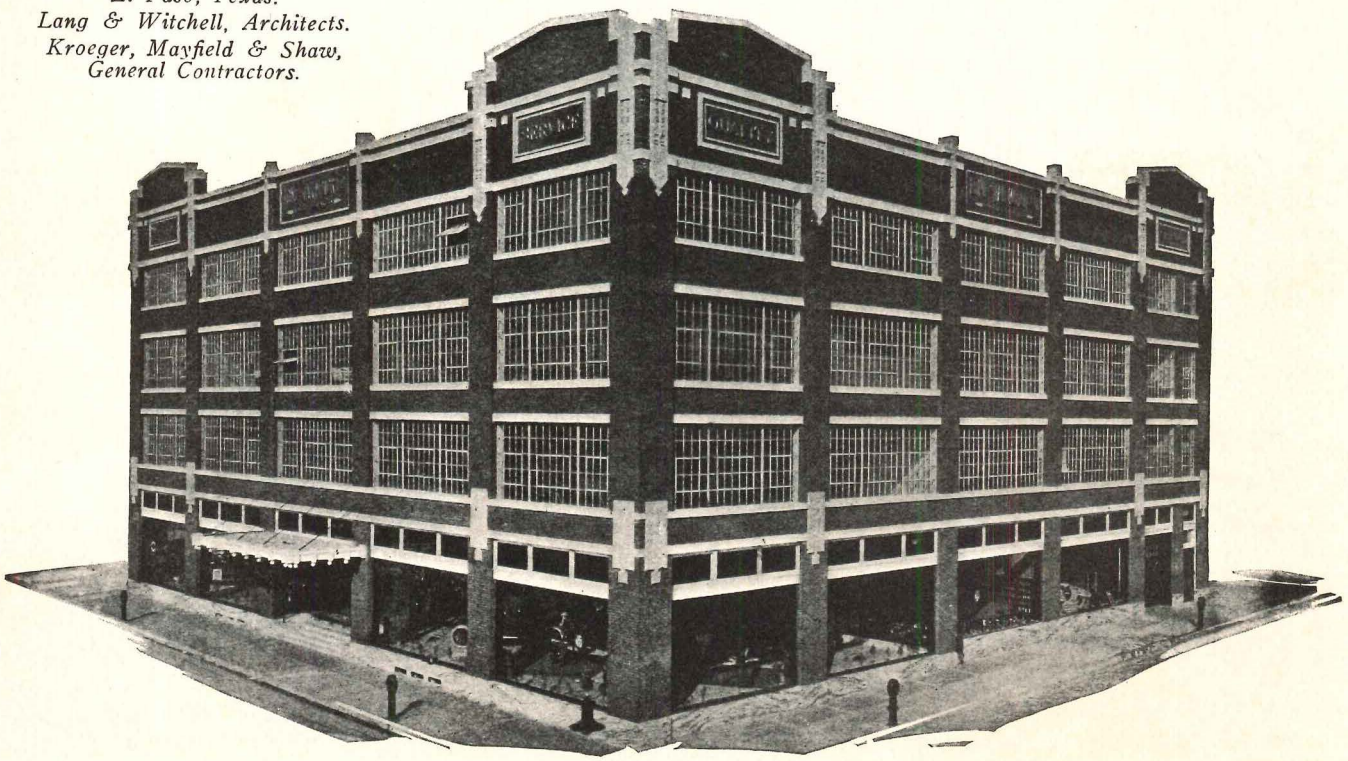
No doubt it is fireproof; is it also proof against loss of life and limb through panic?

Install **Von Duprin** Self-Releasing Fire Exit Latches and you will make safe exit certain in time of emergency. A touch of hand or body on a **Von Duprin** instantly opens the way to safety.

Let us send you Catalog 12-W, or see "Sweet's"—pages 1212-1216.

VONNEGUT HARDWARE CO.
Indianapolis, Ind.

Lone Star Motor Company Building, El Paso, Texas.
Lang & Witchell, Architects.
Kroeger, Mayfield & Shaw, General Contractors.



This is a fine looking exit device. But that's the last reason for specifying it.

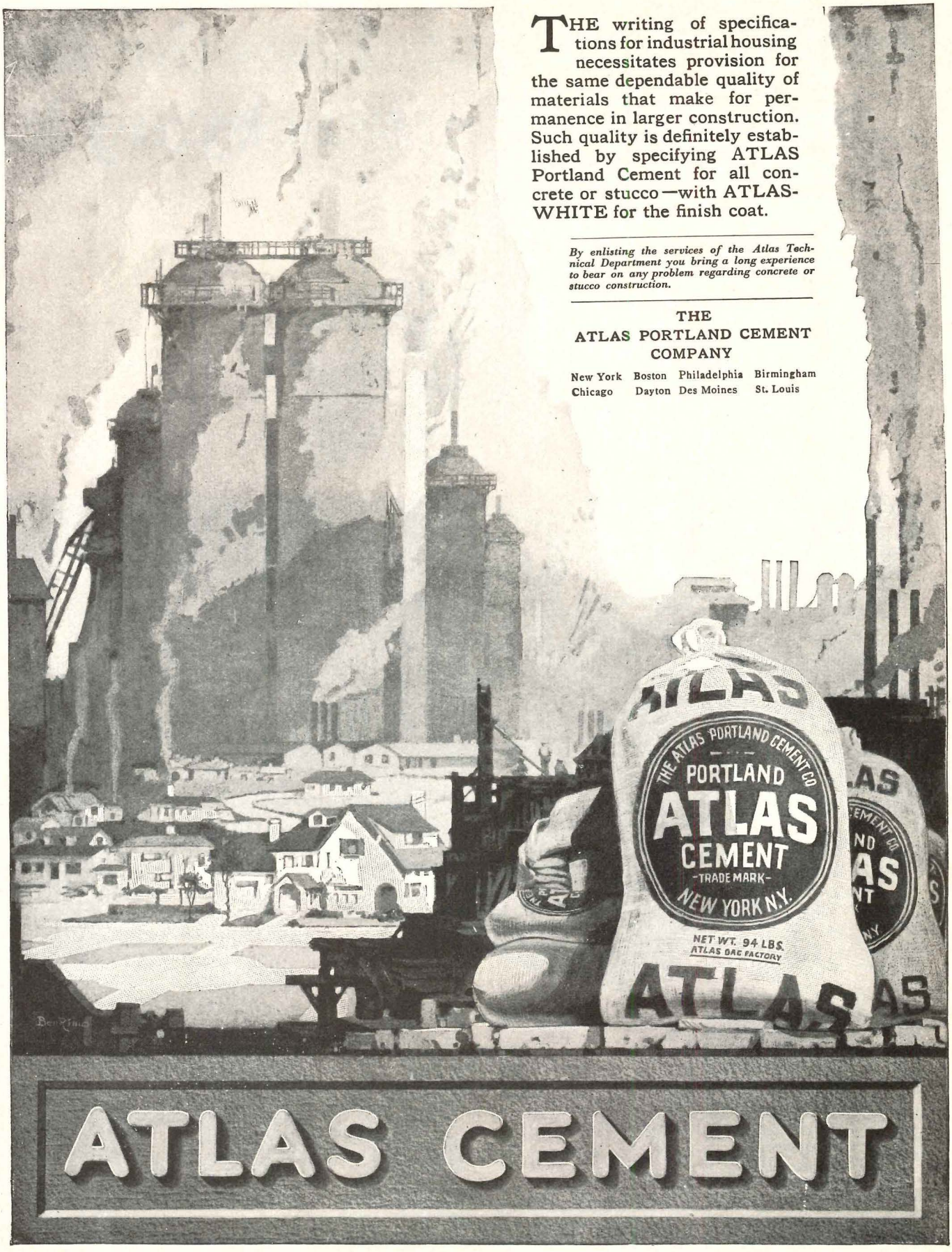




VON DUPRIN, INC. • 400 WEST MARYLAND STREET • INDIANAPOLIS, INDIANA 46225 IN CANADA: VON DUPRIN, LTD.

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DEPENDABILITY



THE writing of specifications for industrial housing necessitates provision for the same dependable quality of materials that make for permanence in larger construction. Such quality is definitely established by specifying ATLAS Portland Cement for all concrete or stucco—with ATLAS-WHITE for the finish coat.

By enlisting the services of the Atlas Technical Department you bring a long experience to bear on any problem regarding concrete or stucco construction.

THE
ATLAS PORTLAND CEMENT
COMPANY

New York Boston Philadelphia Birmingham
Chicago Dayton Des Moines St. Louis



Atlas White and Precast win rave reviews at Atlanta's Arts Center

Atlanta Memorial Arts Center,
Atlanta, Georgia

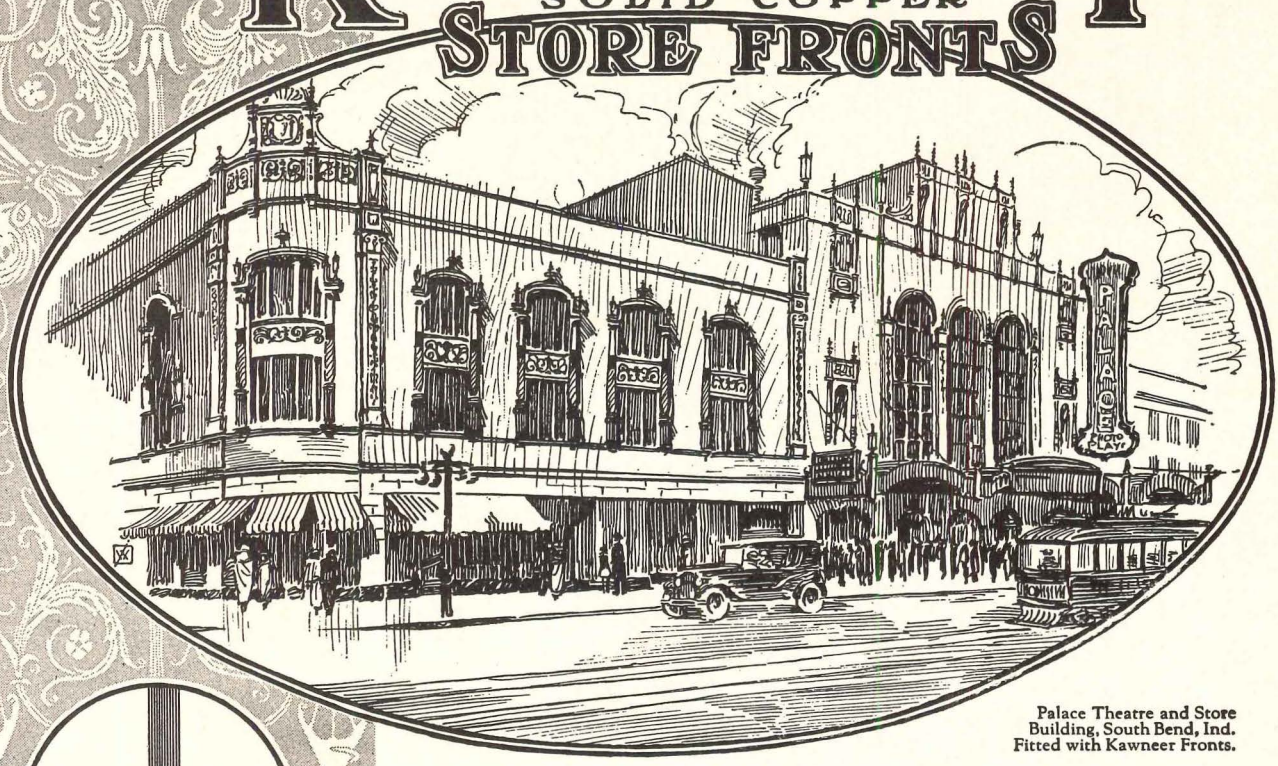
These soaring precast concrete column covers of Atlas White Cement perform an unusual function. They served as forms for the structural reinforced concrete columns. Some of the large trellis beams which encompass the building are as large as 6' 6" x 61' x 10" thick and weigh as much as 18 tons. The supports and benches around the promenade of the building are also made of exposed aggregate precast concrete. Atlas White Cement combined with the exposed white quartz aggregate provide sparkling beauty day and night. High intensity downlights bathe the columns at night and define the space of the promenade enclosure. Precast contractor: Exposaic Industries, Inc., Peachtree City, Georgia. Architects: Toombs, Amisano & Wells—Stevens & Wilkinson, Atlanta, Georgia. General Contractor: Batson-Cook Company, Inc., Atlanta, Ga.

MEMBER PCA **Atlas**
WHITE CEMENT

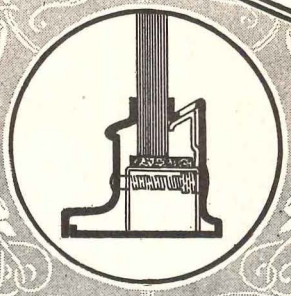
Kawneer

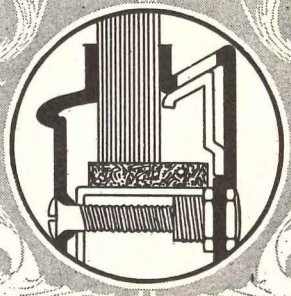
SOLID COPPER

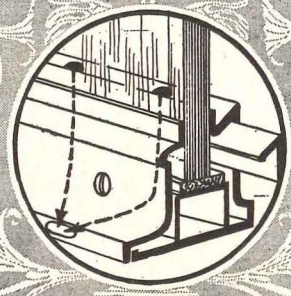
STORE FRONTS



Palace Theatre and Store Building, South Bend, Ind. Fitted with Kawneer Fronts.







Specify Kawneer—
Give your clients the BEST

Architects' approval of Kawneer Solid Copper Store Front Construction is based on its proven worth. For nearly two decades they have been specifying Kawneer Fronts with complete assurance that they are giving their clients the best.

Designed by a successful architect, Kawneer Construction measures up strictly to the three great basic factors—Beauty, Strength and Utility. It is architectually correct in every detail.

But this is not the only feature which makes Kawneer the architect's choice. As shown in the enlarged detail of the new No. 40 sash, (see second panel at left) Kawneer Construction provides a firm but resilient grip on the glass, so that vibrations pass out through the edges, causing no fractures.

Provision for ventilation and drainage is made by a sliding member, which opens and closes the ventilation holes at will. This feature reduces frosting to a minimum.

Our new Catalog "L" gives complete information about various features of Kawneer Construction. May we send you a copy for your files?

THE Kawneer COMPANY

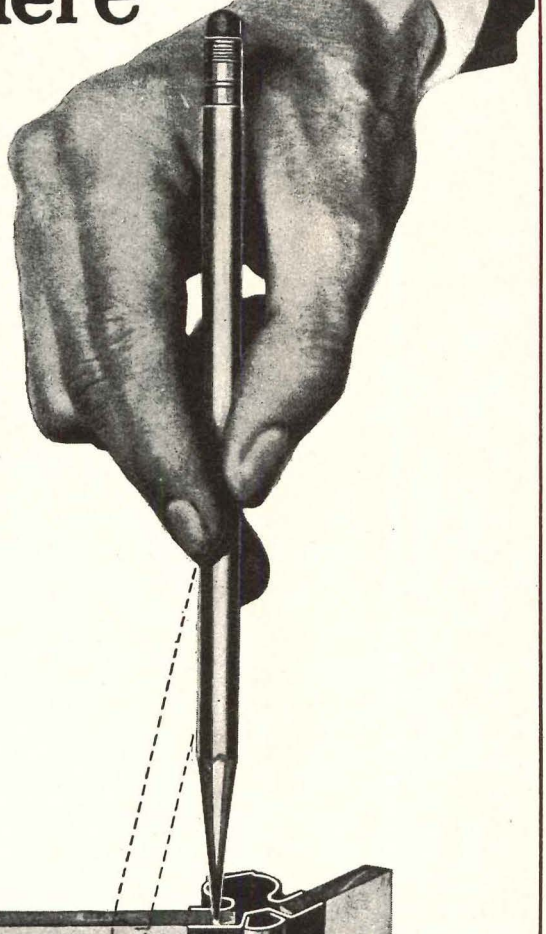
1328 Front Street **Niles, Michigan**

Kawneer

SOLID COPPER

STORE FRONTS

The Reason is Here — and Here



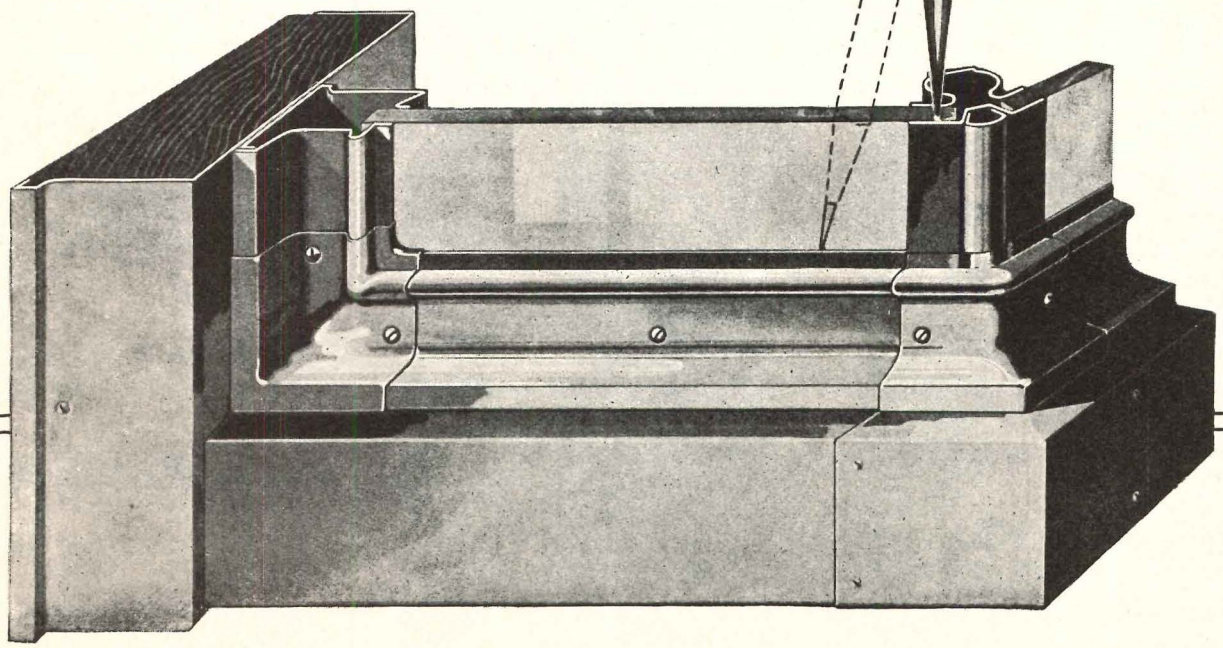
Kawneer Solid Copper Store Front Construction holds plate glass between two spring shaped members. This Kawneer resiliency allows all vibration waves, such as are caused by the jolting of street cars or trucks, or from sudden wind pressure to pass out thru the edges of the plate without fracture.

This sturdy but resilient grip on plate glass has proven reliable and efficient in more than 260,000 Kawneer Store Front installations.

Our catalogs L and K, giving detailed information for architects, mailed upon request.

THE Kawneer COMPANY

2328 Front Street Niles, Michigan



Kawneer introduces a new system of aluminum entrance coordinates ...Entara

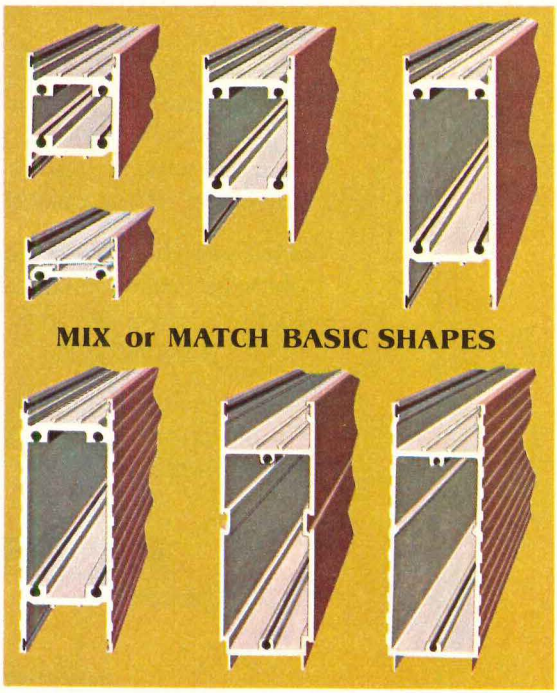


Now you can design entrance areas as individual and memorable as your buildings.

For the first time you aren't confined to stereotyped entrance styles.

Entara is a system of aluminum extrusions, sub-assemblies, parts, pieces and hardware. Variants in stiles, rails, plankings, glazing options. Related in appearance and in function to achieve a wide selection of interchangeable design elements for an almost limitless variety of entrance configurations.

To put it another way . . . Entara is a system of entrance coordinates. Door coordinates—Frame coordinates —Hardware coordinates. New form, dimension, plane, texture, color. New push-pull hardware, created as part of the system, can be varied to meet your design individuality.



The multiple components of the Kawneer/Entara system give you optimum design freedom. For full information, see your Kawneer representative or contact Kawneer Product Information, 1105 N. Front St., Niles, Michigan 49120.

Entara is a trademark of Kawneer/AMAX.

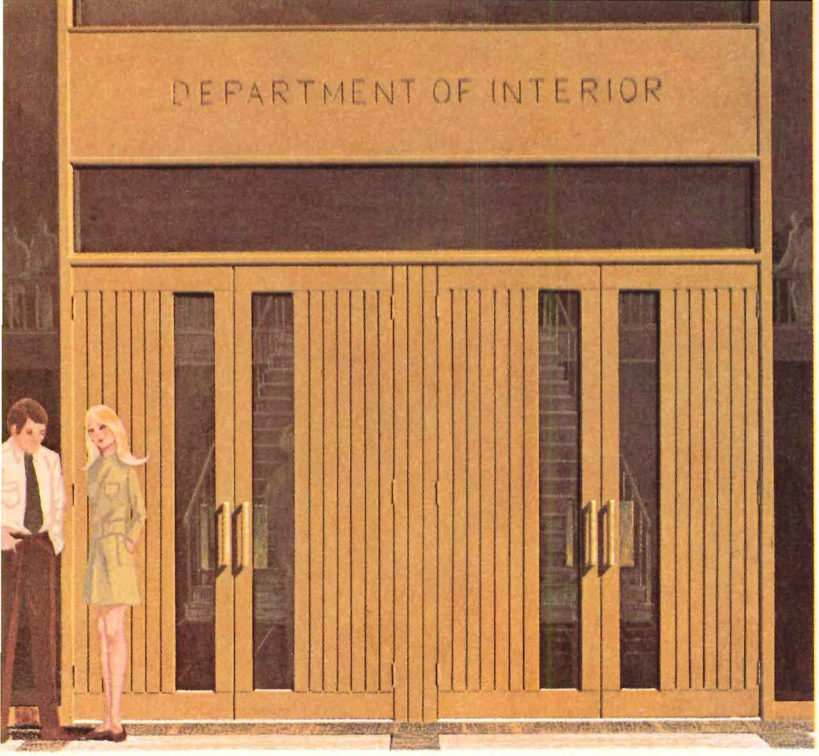
THE KAWNEER CONCEPT:
Attention to detail

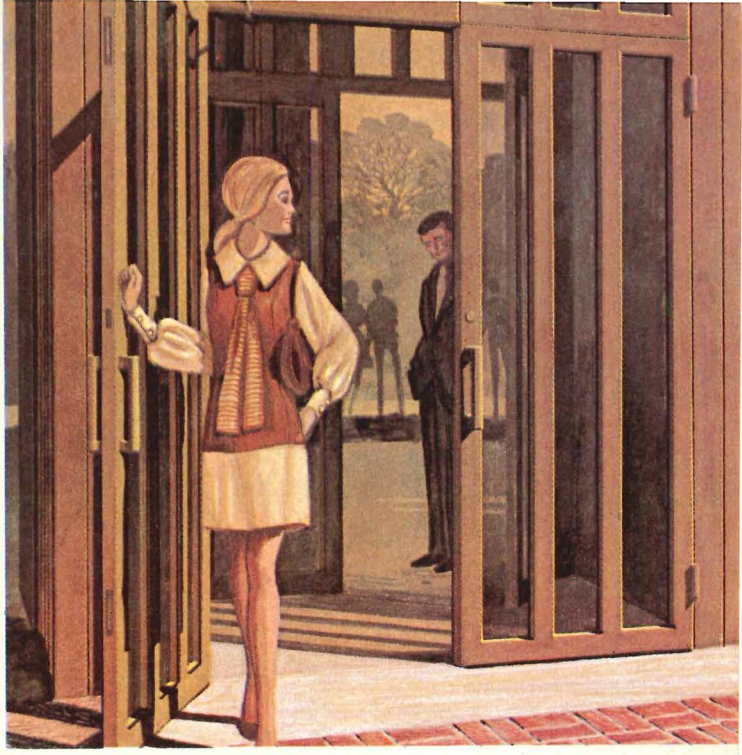
KAWNEER
ARCHITECTURAL PRODUCTS
AMAX
ALUMINUM

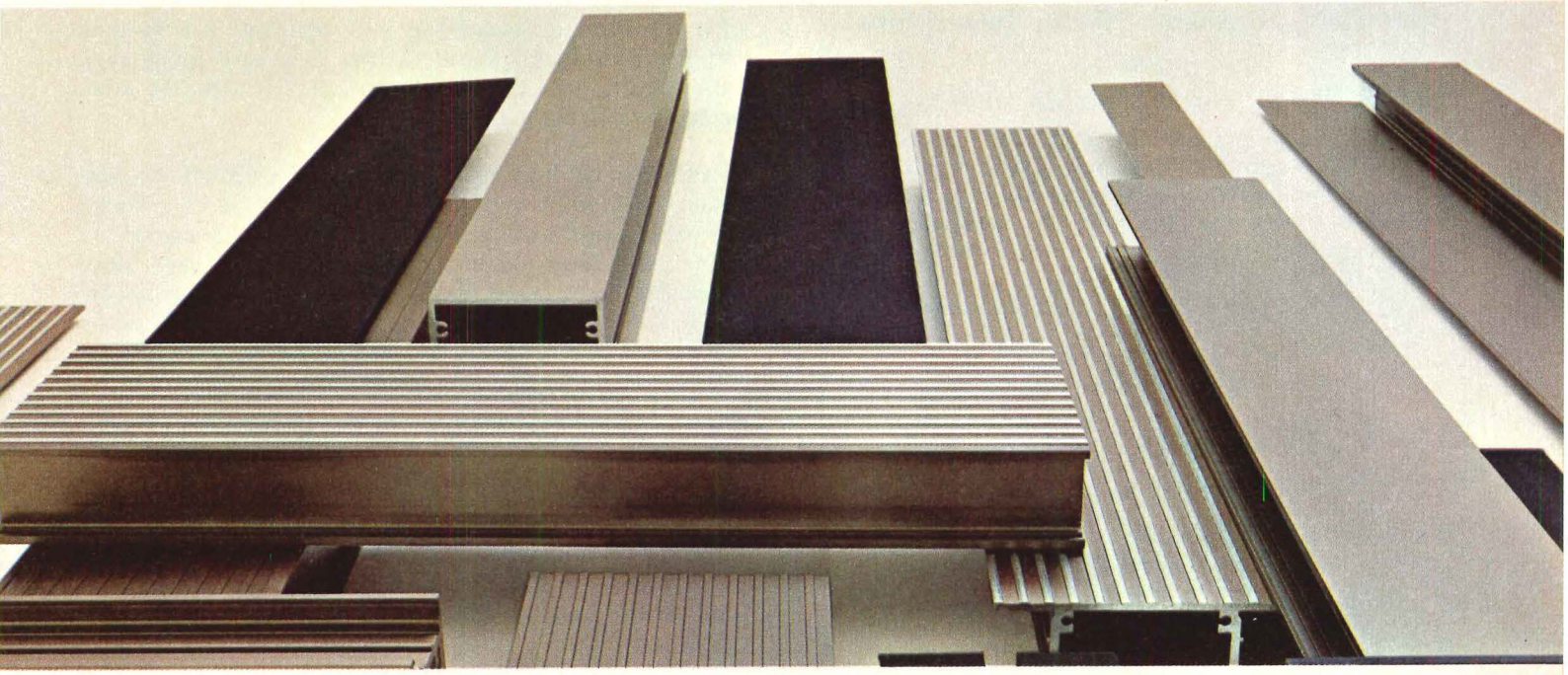
Kawneer Company, Inc., a Subsidiary of American Metal Climax, Inc.
Niles, Michigan • Richmond, California • Atlanta, Georgia • Bloomsburg, Penn. • Harrisonburg, Va. • Kawneer Company Canada, Ltd., Toronto

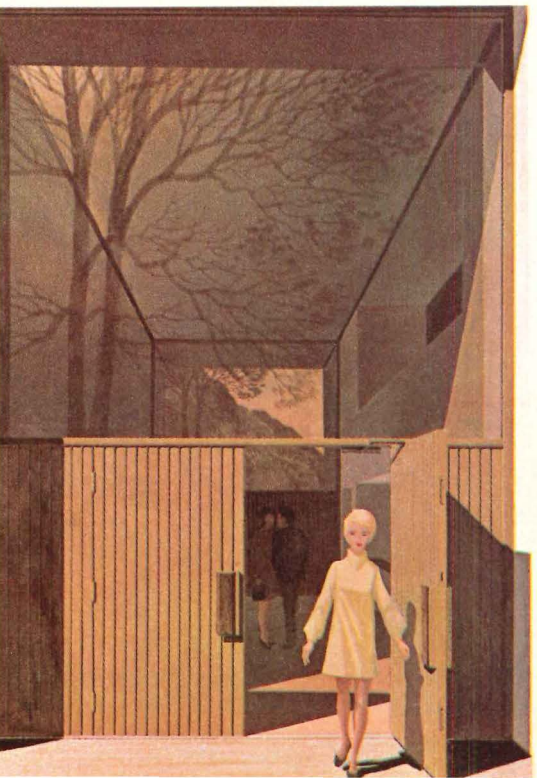
Designs and renderings by Richard P. Howard Associates, Architectural Illustrators, Sylvania, Ohio, Harold R. Roe, A.I.A.

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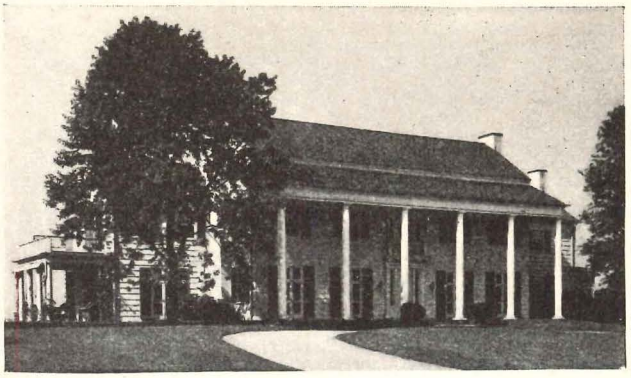

DEPARTMENT OF INTERIOR











Shingled Walls and Brick Chimneys finished with Cabot's Old Virginia White—John Russell Pope, Architect, New York

Cabot's Old Virginia White

The Cool, Brilliant "Whitewash-White"

for

Wood, Brick, Stone, Stucco or Concrete

Leading architects are getting remarkable results by using Old Virginia White upon brick, stone and stucco, as well as wood. It gives an instant effect of well-groomed old age, and the brilliant, cool, whitewash-white has a softness of texture that is not at all "painty"—and it costs much less than paint. Old Virginia Tints give pastel effects.

Cabot's Creosote Stains

For Mottled Roof Effects

Picturesque combinations in mottled sea-greens, grays, tile-reds and blended colors can be produced by using our Special Stains; and in far greater variety and beauty than is possible in slate, tile or imitation shingles.

Cabot's "Quilt"

Cold-Proof *Heat-Proof* *Sound-Proof*

The warmest lining. One layer equal to 28 to 40 layers of common building paper. Saves its cost many times over in reduced fuel bills. The most perfect sound-deadener, because it breaks up and absorbs the sound-waves. Scientific, sanitary and uninflammable.

Cabot's Stucco Stains

For artistically tinting stucco and similar cement surfaces, and for rainproofing. Warm, delicate colorings that enhance the natural texture of the cement.

Send for samples and full information.

SAMUEL CABOT, Inc.

Manufacturing Chemists, Boston

1133 Broadway, New York *24 W. Kinzie St., Chicago*

A word from Samuel Cabot Inc.

After 43 years of advertising in Progressive Architecture and its predecessor, Pencil Points, it is only fitting that Samuel Cabot Inc. should be represented in this, the 50th Anniversary of the magazine.

Cabot's Stains, the original stains and standard for the nation since 1877, were introduced as a superior product for wood almost a century ago. Over the years many refinements have been made; many new products have been developed; Cabot sales have expanded across the nation and throughout the world. Thus today, as before, the name Samuel Cabot Inc. stands for quality and dependability in the manufacturing of stains and paints.

It is a basic function of the Cabot advertising program to bring the Cabot message to the architect . . . to make him aware of the advantages of stains, to keep him abreast of the latest developments in the treatment of wood. An indication of this effort is the fact that Samuel Cabot, Inc., has consistently advertised in Pencil Points and Progressive Architecture over the past fifty years.

Congratulations to Progressive Architecture on its Golden Anniversary.

Bring Out the Best in Wood

SHINGLES SIDING CLAPBOARDS PANELING DECKING

with Cabot's STAINS



Home in the High Sierras of California; Architect: Charles O. Matcham, Jr., Tahoe City, Cal.; Cabot's Stains specified for Redwood.

Cabot's Stains, in 87 unique colors, protect the wood, enhance the grain, grow old gracefully, never crack, peel, or blister.

Here is wood at its wonderful best. The architect, in specifying a finish for this home, sought beauty and more . . . a finish that would stand up to summer sun and winter cold, that would require minimum maintenance while protecting the wood for a long, trouble-free life. His choice: Cabot's Stains. Cabot's Stains are applicable to all types of wood and all wood surfaces, interior or exterior.

For those who are building now or planning to build or remodel soon, the hour for decision is at hand. Will it be stain or paint for your home? Think it over carefully, for stains have the advantage over paints in terms of natural beauty, economy, longer life, ease of application and trouble-free maintenance. Today, the trend is toward stains . . .

"Cabot's Stains, the Original Stains and Standard for the Nation since 1877."



Samuel Cabot Inc.

628 S. Terminal Trust Bldg., Boston, Mass. 02210

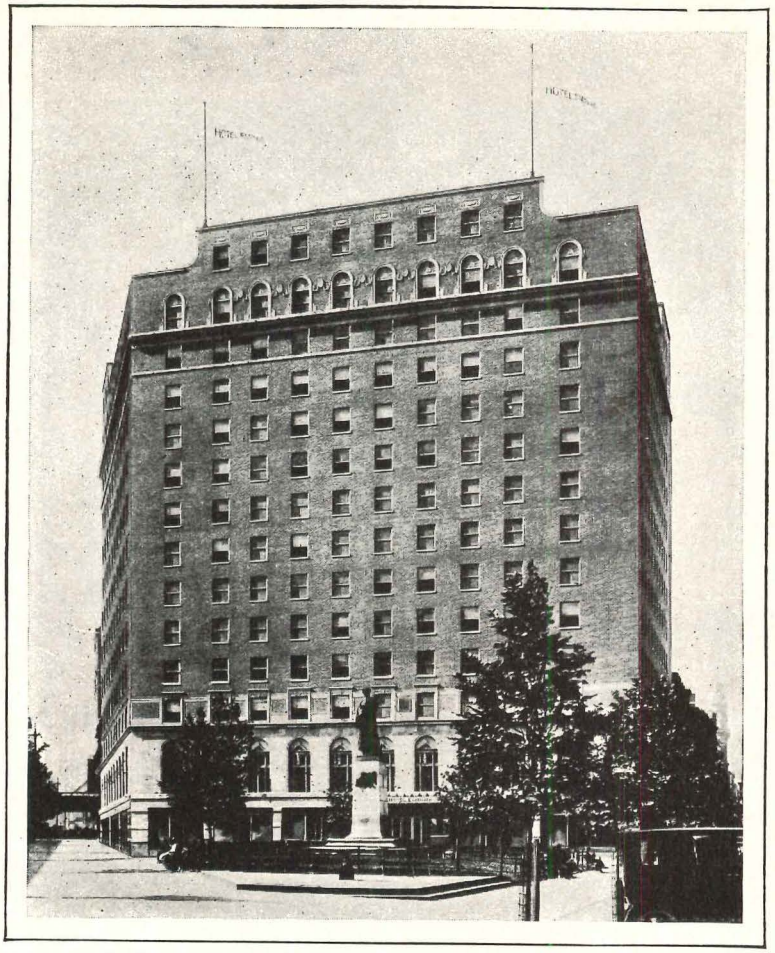
Please send color card on: ☐ Cabot's Stains, ☐ Cabot's Stain Wax, ☐ Cabot's Decking Stains.

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HOTEL EMPIRE, New York City: Fred J. Merrick Co., Pittsburgh, Pa., Architects; Standard Plumbing Supply Co., New York City, Jobbers; W. G. Cornell Co., New York City, Plumbers

KOHLER

And HOTEL EMPIRE

For this fine hotel Kohler of Kohler furnished 294 "Viceroy" built-in baths—of admirably uniform whiteness; of graceful, distinguished design; of more than ordinary quality—each bearing as its permanent identifying sign the name "Kohler" fused deep in the enamel, pride-mark of a firm more than half a century old.

KOHLER OF KOHLER

Kohler Co., *Founded 1873*, Kohler, Wisconsin
Shipping Point, Sheboygan, Wisconsin

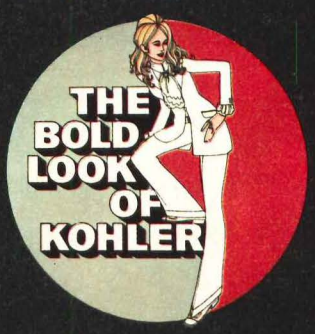
BRANCHES IN PRINCIPAL CITIES

MANUFACTURERS OF ENAMELED PLUMBING WARE AND KOHLER AUTOMATIC POWER AND LIGHT 110 VOLT D. C.



Kohler gives the ho-hum bath the heave-ho.

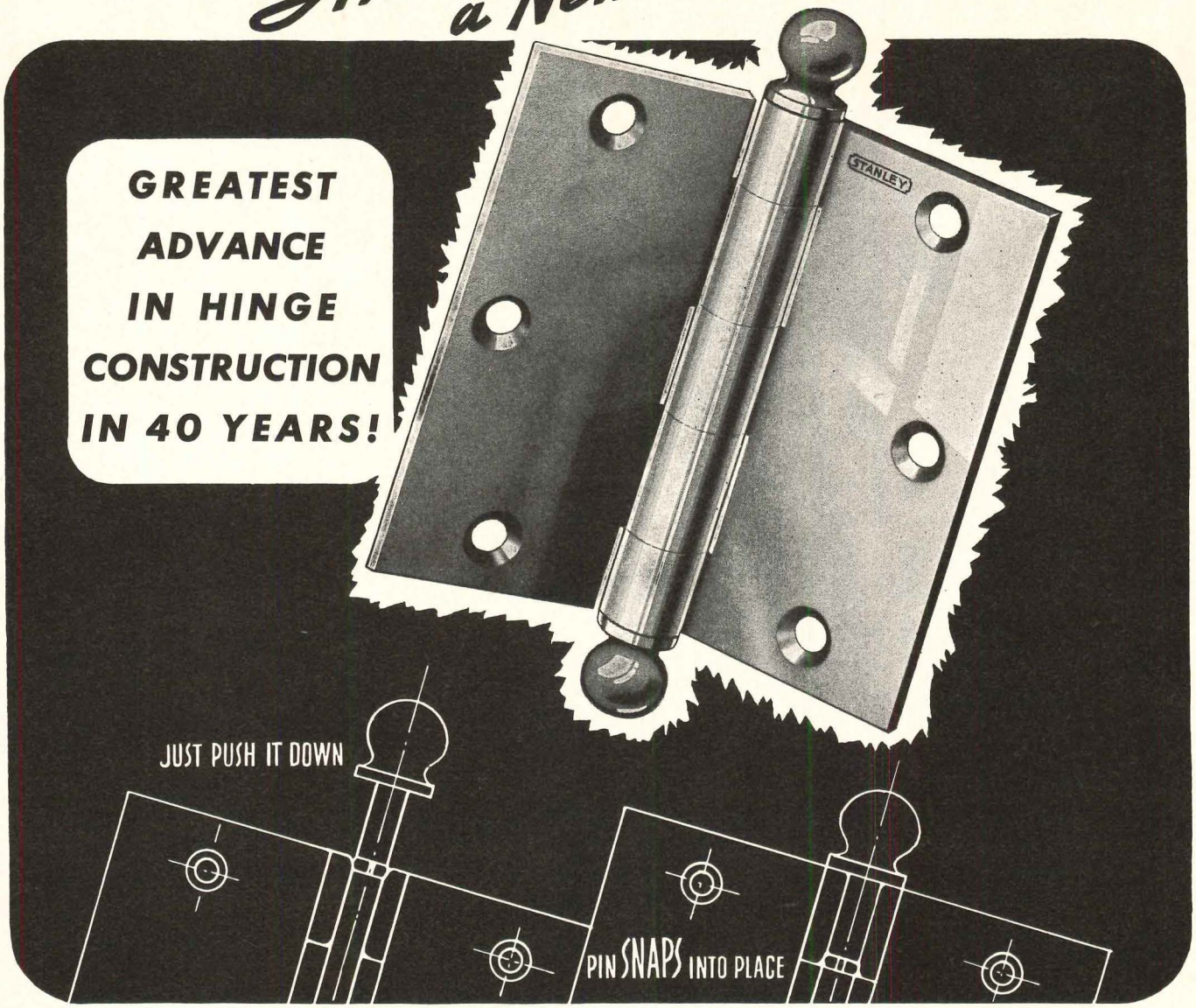
In with the bold... out with the ho-hum! Kohler's in with bold colors and bold shapes for your customers. For an "in" color, it's Kohler Avocado...mellow and warm. The go-with-everything color introduced to the bathroom by Kohler. Try it in the Caribbean tub: luxury-sized, with six feet of stretch-out comfort. Give the sides of the Caribbean any treatment that imagination suggests... laminates, paneling, even carpet. Continue Avocado in the Lady Vanity, Kohler's new bold idea in lavatories. It's a shampoo center and a baby bath, too. Bold accent? A lavatory in Kohler Antique Red. Give the heave-ho to old ideas about the bath. Sell the bold! The bold look of Kohler.



Kohler Co., Kohler, Wisconsin

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STANLEY *Announces a New* NON-RISING PIN *



Anyone who knows the shortcomings of the common winged type of non-rising pin in door butts will appreciate that at last, this new Stanley design is the simple solution of the problem.

• •

The non-rising feature of this new pin is secured by means of a split ring attached in a groove in the pin. This split ring fits into a pocket formed in the bottom of the top knuckle of the butt. When the pin, through the action of the door, attempts to rise, the split ring comes in contact with the inside of the knuckle above the pocket and is prevented from further rising.

Outstanding features of the new pin are: extreme simplicity in construction, its effectiveness in operation and its ease in setting and withdrawing.

• •

To the architect, this new, exclusive Stanley feature is further evidence of leadership in hinge construction. It is impossible to so schedule production to introduce simultaneously this new feature into all class numbers, sizes and finishes, but from now on this is our standard type of pin and eventually will appear in all plain joint butts of the 241 grade and up. **The Stanley Works, New Britain, Conn.**

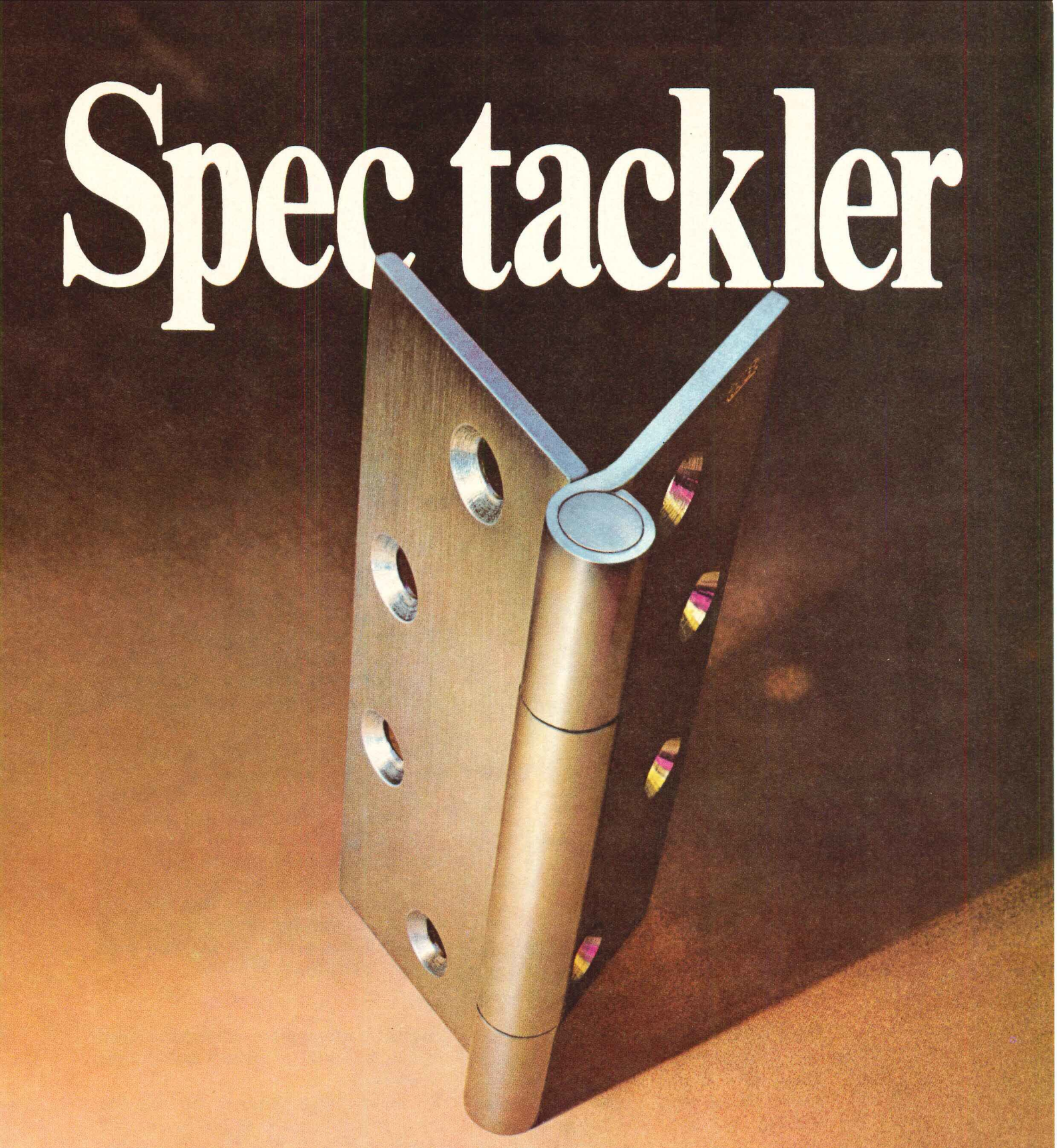
* PATENT PENDING

STANLEY

TRADE MARK

HARDWARE FOR CAREFREE DOORS

Spec tackler



the hinge that has no equal

When the spec calls for three-knuckle construction with flush tips and stainless steel pins recessed in the barrel, concealed bearings not using oils or grease and requiring no maintenance . . . it calls for the Stanley LifeSpan hinge* . . . the hinge that has no equal. LifeSpan is the only hinge that can meet such rigid specifications. *And it's so extraordinary that it's guaranteed for the life of the building.*

Featuring the slimmest three-knuckle barrel in the industry, the LifeSpan hinge utilizes a new architectural-grade LifeStan™ bearing. This bearing consists of a precision-flat and super-finished stainless steel bearing part that works against Stanite, a self-lubricating bearing material. The result . . . LifeSpan offers a totally new concept in hinge design and bearing construction — yet one that has been successfully proven in laboratory and field use.

For additional information on this new hinge design; request LifeSpan brochure H-463. Write Stanley Hardware, Division of The Stanley Works, New Britain, Connecticut 06050.

STANLEY

helps you do things right

BUILDERS HARDWARE MANUFACTURERS ASSOCIATION MEMBER bhma

*Patent pending

In Canada: The Stanley Works of Canada Limited

On Readers' Service Card, Circle No. 390

This NAME and DESIGN WON the contest!



We wish to thank the Architects and Architects' employees throughout the country for their generous help in finding a suitable name-design for our 1/8" Polished Plate Glass. Over 6000 individual name-designs were submitted. After a careful study the judges unanimously decided on the name VISTA PLATE and the above design.

VISTA PLATE is a good name. It is descriptive, has good association value, is short and easy to remember. Of the five contestants submitting the name of VISTA PLATE, the name-design submitted by Miss Marguerite Riedeman, who is employed by Oppenhamer & Obel, architects of Green Bay, Wis., was considered the most appropriate and was awarded the prize. To her has been mailed a check for $1,000.

VISTA PLATE has a definite place in your plans because it combines the beauty and quality of plate glass with the low cost of glazing window glass. It fits standard 1⅜" sash and therefore is as inexpensive to glaze as ordinary window glass. You now can specify VISTA PLATE with the knowledge that you will get a beautiful, *polished plate glass* only 1/8" in thickness at a cost only slightly more than that of ordinary glass. The small added cost on the finished job is negligible when compared with the added beauty and attractiveness it gives to the building.

A sticker, incorporating the winning name and design, will be placed on every piece of VISTA PLATE. This sticker should be left on the glass until passed on by the Architect's Superintendent to insure against substitution.

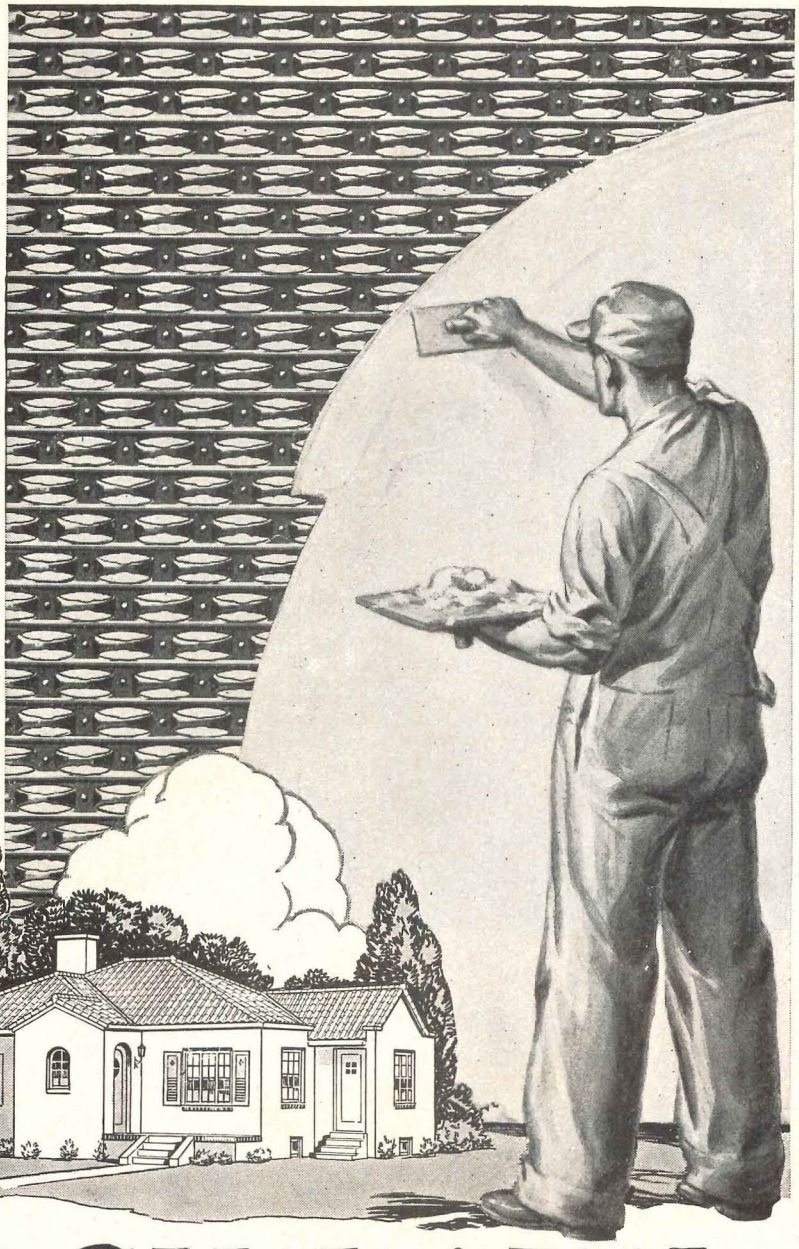
Prices and full information on VISTA PLATE, the 1/8" Plate Glass can be obtained from any of our 52 warehouses.

PITTSBURGH PLATE GLASS COMPANY

1618 FRICK BUILDING, PITTSBURGH, PA.

On Readers' Service Card, Circle No. 380

a barrier to fire— not merely a plastered wall



Wheeling
CORRUGATING COMPANY

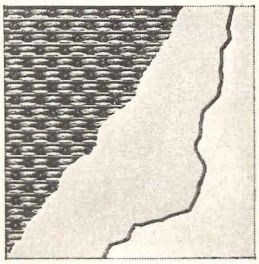
ARCH LATH

WHEELING National Advertising is drawing public attention to fire-safe homes. Arch Lath helps to fortify the home against fire by making walls and ceilings a veritable armor of steel—an almost impregnable barrier against the destructive hand of fire!

Every building budget will permit the use of Arch Lath. It costs no more to use than an inflammable material. The reason for this is that Arch Lath saves plaster, saves time and labor. The scientifically designed arches permit only the correct amount of plaster to squeeze through for perfect "key." There is no piling up of plaster between walls. The rigidity of the sheet of Arch Lath assists rapid plastering and reduces the cost of erection. Arch Lath is nearly a solid sheet of steel and therefore easy to handle, erect and plaster—an ideal base for those new plaster-texture effects which are so popular at the moment.

Immediately after application the first coat of plaster can be scratched and made ready for the second coat without removing scaffolding. This saves time and labor.

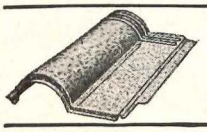
Home builder, plasterer, lather and contractor benefit when you write Arch Lath into the specifications. Let us send you additional information and sample. Write us today.



One Sheet of Arch Lath (27 x 96) grips the plaster at 8064 points; making the wall an integral unit of rigidity and strength, while minimizing possibility of cracking.

WHEELING CORRUGATING COMPANY, Wheeling, W. Va.

Branches: New York Philadelphia Chicago Minneapolis St. Louis Kansas City Chattanooga Richmond Des Moines

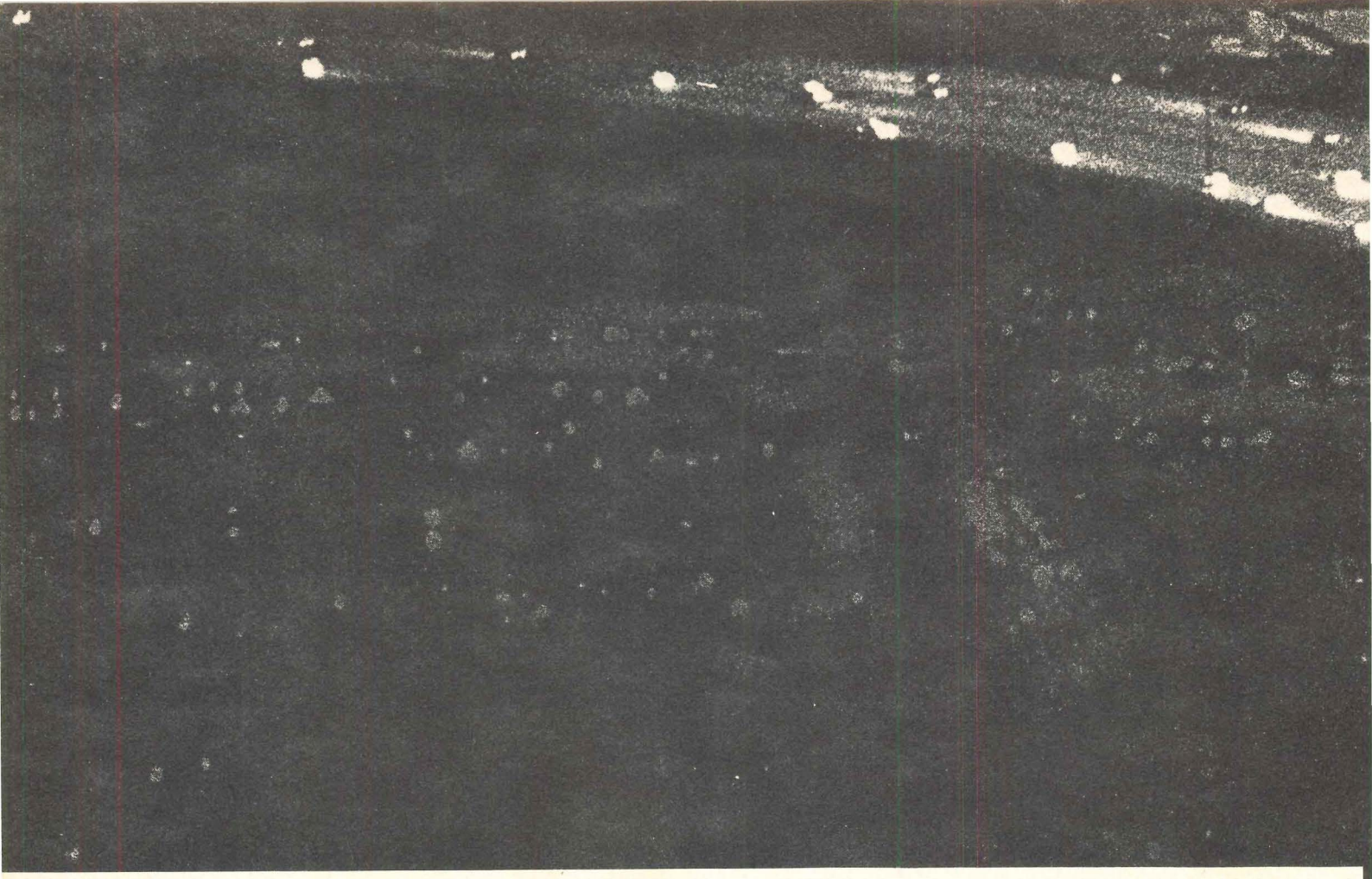


Wheeling Spanish Metal Tile

For a roof of enduring beauty at low cost, specify Wheeling Spanish Metal Tile. It is proof against rust, leaks and lightning. Permanent and highly practical as well as artistic and attractive. Write for full information.

Copyright 1928, Wheeling Corrugating Company

We still make lath, but now it's only one of over 120 products we make for the nation's building and highway construction industries. Turn this page and see.



Every night at sundown something happens to good old American ingenuity.

We Americans have the best highways in the world but only during the daytime. At night headlight glare virtually puts us back in the dark ages. There was never any adequate answer before but now we've invented one: Glare Barrier.

Glare Barrier is a new kind of anti-glare screen for divided highways and it costs less to install and less to maintain than anything else. But it's not the only thing we make for the building and highway construction industries. We make more than 120 other products.

We make Bridge Form, for example. It's used in the construction of road surfaces on bridges. Besides being a big money-saver—compared to wood forms—it's faster and safer to work with.

And, for another example, we make Steelcrete—a fiendish tangle of expanded metal and concrete reinforcing bars. It's also another money-saving product. It stops bank vault robbers from robbing bank vaults.

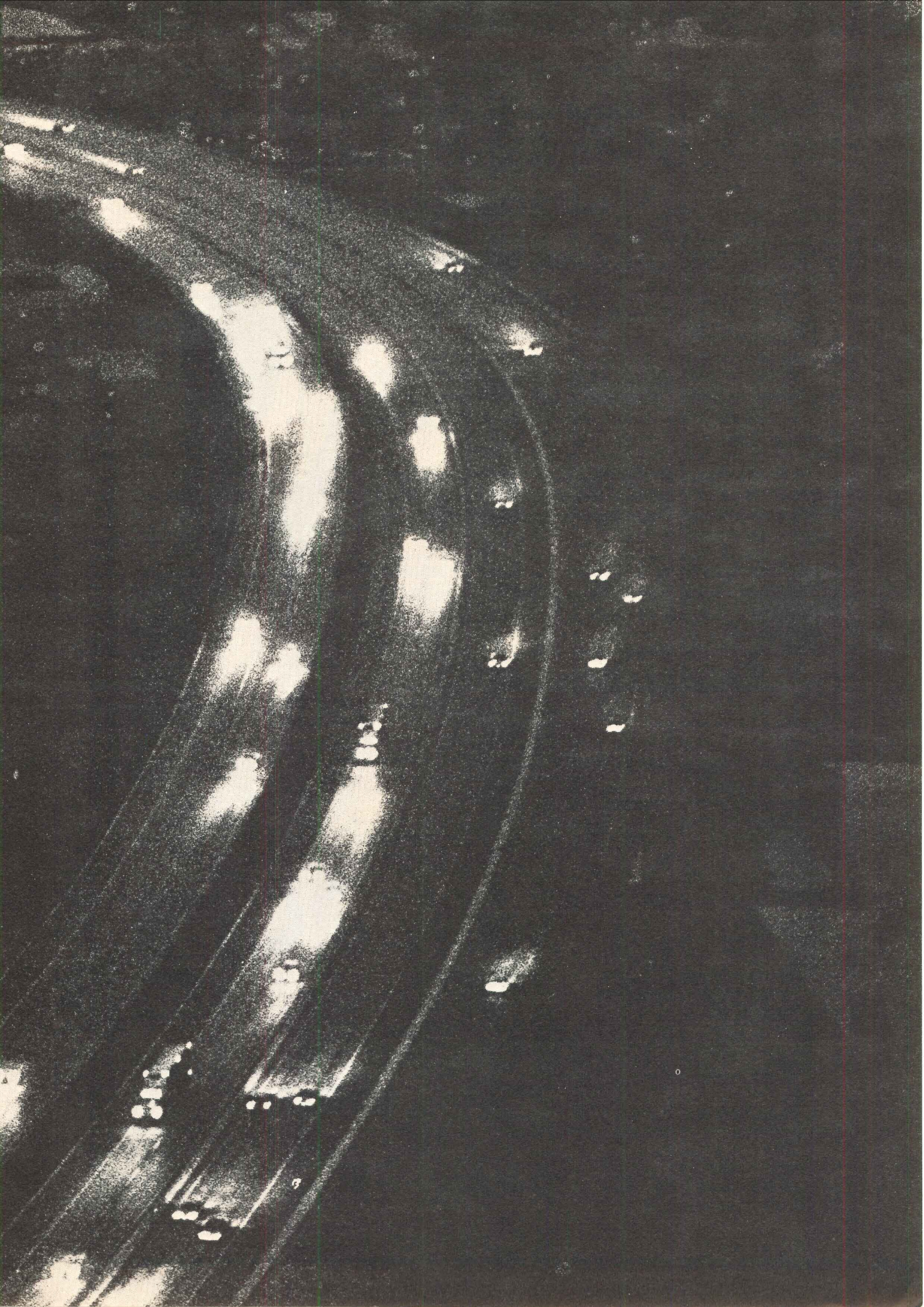
But just saying we're big isn't enough. Here are some facts: We have 53 sales offices, warehouses and fabricating plants covering every major marketing area in the country. Plus a field force of nearly 300 people.

And our research staff is busy working on 28 new products. So take advantage of our size. And our ingenuity. Specify Wheeling.

Wheeling Corrugating Company
A DIVISION OF WHEELING-PITTSBURGH STEEL CORPORATION

96% of what we make builds highways, buildings and reputations.

On Readers' Service Card, Circle No. 439



The Threat of Corrosion

AS King Dionysius showed Damocles, by the sword suspended above his head, the dangers that overhang greatness, so the menace of corroded drain pipe may be likened to "The Sword of Damocles."

The fine residence, where all materials are selected with extreme care for the comfort and satisfaction of the owner, should have Duriron drain lines as well as brass supply lines.

Although acid conditions are not present, corrosion takes its toll of other materials, and the failure of one length of waste pipe may result in damage many times the cost of Duriron.

Installing Duriron pipe—acid, alkali and rust proof—is paid up and incontestable insurance against every form of corrosive failure for all time. We shall be glad to send full details.

Duriron is produced only by

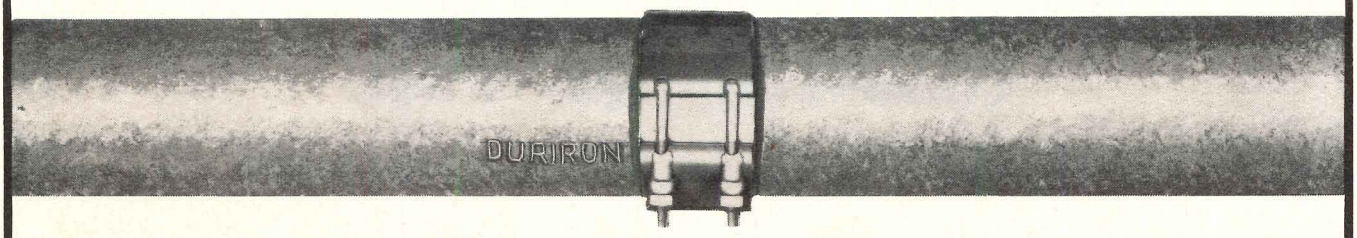
The DURIRON COMPANY
DAYTON·OHIO



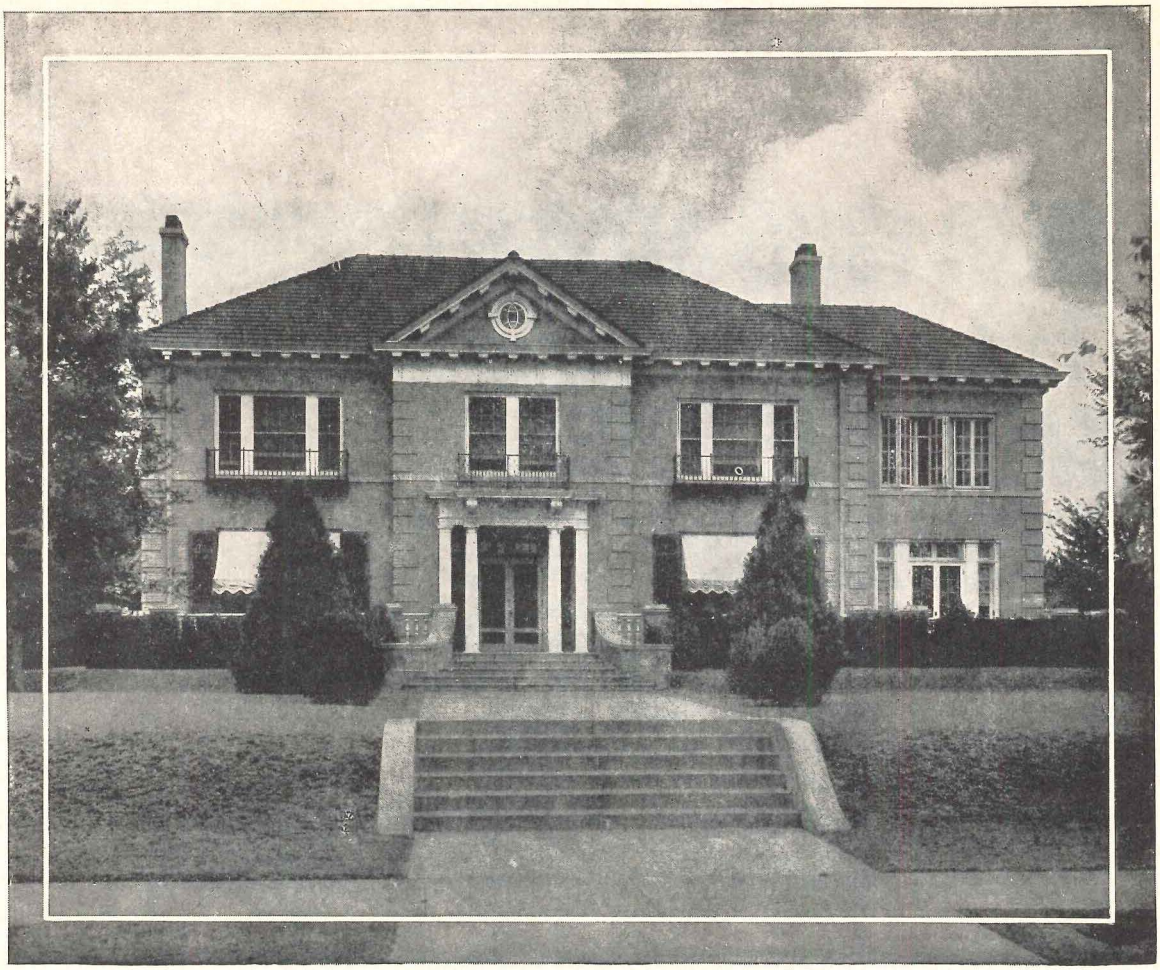
OUR 1920 ADVERTISEMENT TOLD HOW DURIRON PIPE MET THE THREAT OF CORROSION: TODAY DURIRON PIPE REMAINS UNEXCELLED IN CORROSION RESISTANCE

After fifty years of handling corrosive wastes, there's still nothing more effective than Duriron high silicon iron pipe. Its life-of-the-building dependability assures problem-free, permanent service for just about any laboratory or chemical process wastes. It's economical too, and with Durco "MJ" Mechanical Joint no wonder Duriron pipe is used wherever positive, permanent installations are required. Send for Bulletin PF-6.

THE DURIRON COMPANY, INC., DAYTON, OHIO DURCO



On Readers' Service Card, Circle No. 447



Roofed for All Time

When H. B. Thompson, Architect, selected IMPERIAL Closed Shingle Tiles for this attractive Georgian residence he provided it with a roof which will never require replacement and will rarely, if ever, need repairs. Although designed to impart the shingle effect so reminiscent of Colonial days, these tiles have sufficient depth to accentuate the horizontal line and thus escape the monotony of the ordinary flat shingle of wood, asbestos or slate.

IMPERIAL

Closed Shingle Tiles

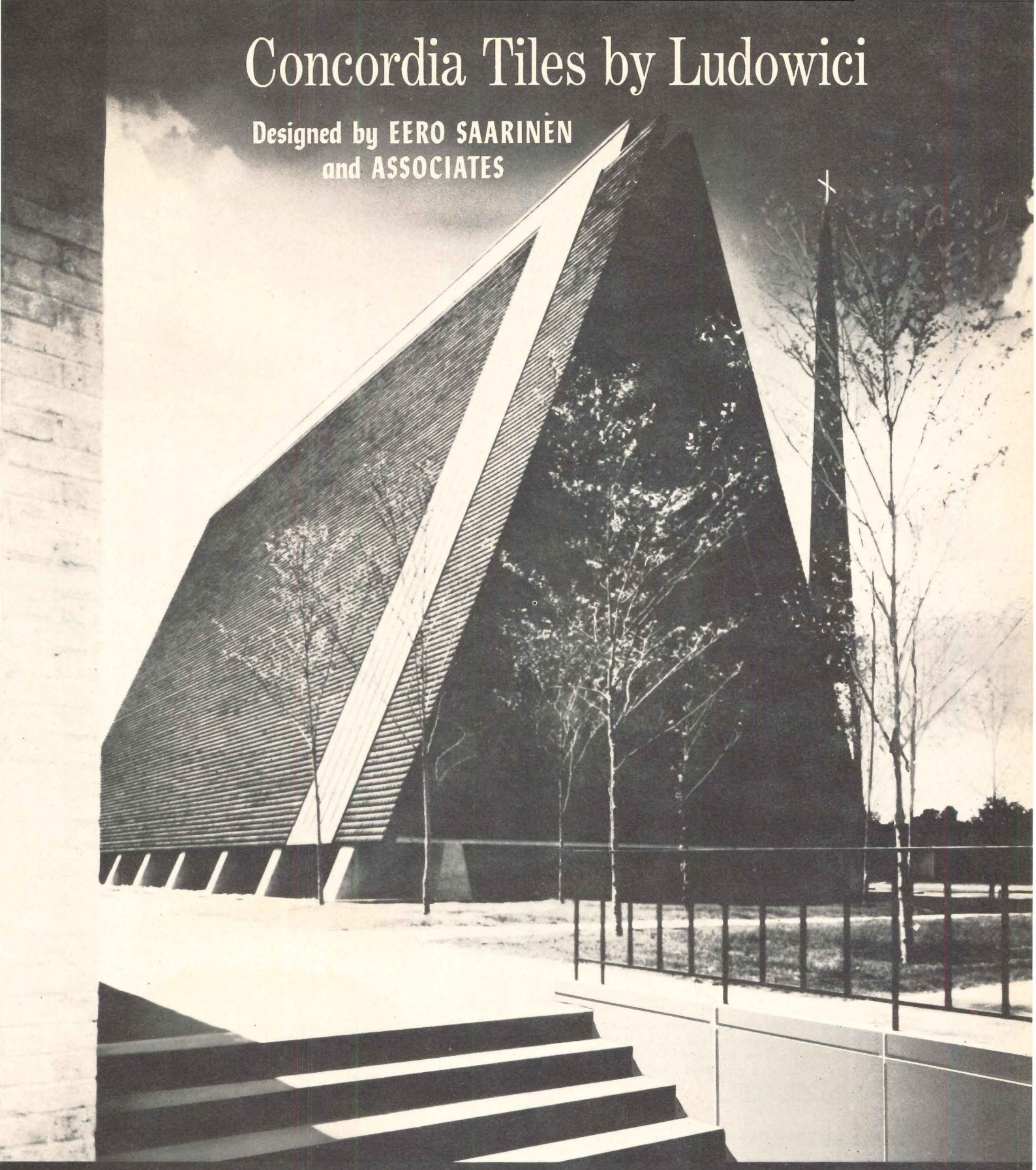
LUDOWICI-CELADON COMPANY

104 South Michigan Boulevard Chicago, Illinois

Reprinted from PENCIL POINTS February, 1924

Concordia Tiles by Ludowici

Designed by EERO SAARINEN and ASSOCIATES



Ludowici-Celadon Company was selected to produce the ceramic roofing tiles, designed by Eero Saarinen & Associates, which were so important in the full development of the architectural character of Concordia Senior College.

For over 70 years we have been assisting architects and engineers in producing roofing tiles for their specially designed work.

In addition, we offer standard patterns in a wide range of colors of roofing tile in both the Interlocking and Flat Shingle types for contemporary and traditional designs.

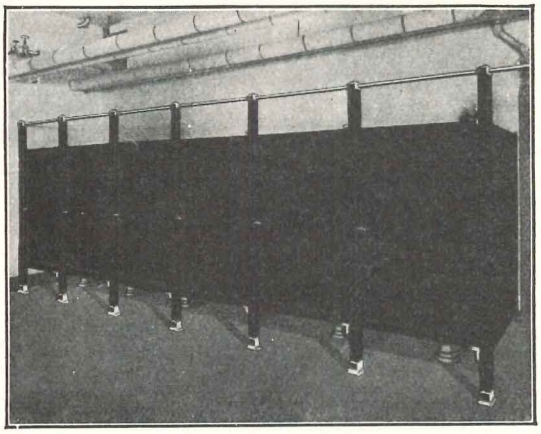
Our representatives are always available to assist you on your special roofing problems

LUDOWICI-CELADON CO. 75 EAST WACKER DRIVE, CHICAGO, ILL. 60601

Manufacturers of quarry tile, the nation's largest producer of roofing tile and NAILON Facing Brick

On Readers' Service Card, Circle No. 424

Craftsmanship in Metal
The Sanymetal Symbol



Sanymetal in Jackson St. School, Baltimore

Metal is a Stubborn Fighter

YOU know how severe are service conditions in the average shop or school toilet. Indifferent, slam-bang treatment may put wood partitions in a down-at-the-heels, unsanitary, unsightly condition. But *metal* will stand up and fight—hard knocks and abuse make little impression on it.

Most people, when they say metal, think of Sanymetal, which exemplifies all that is strong, staunch, and clean in the way of a metal partition.

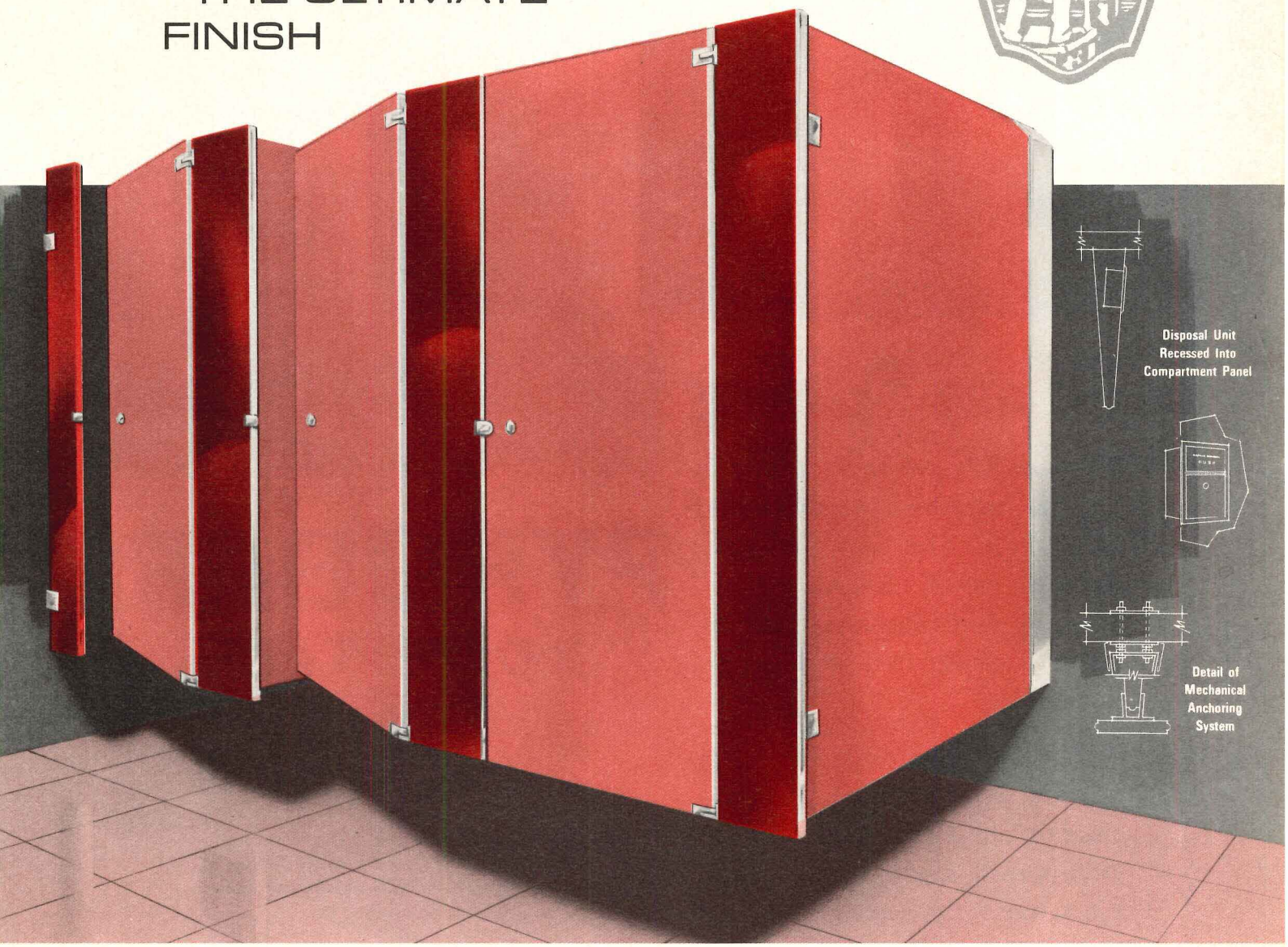
Sanymetal Products are: Partitions for toilets, showers, dressing rooms, urinals. Partitions for offices and factories. Metal doors, screens and wainscot. Sanymetal Gravity Roller Hinges for toilet doors. Write for latest Bulletins.

THE SANYMETAL PRODUCTS CO.
1712 Urbana Rd. Cleveland, O.

Sanymetal
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Toilet and Office
PARTITIONS

50 years later and Sanymetals still offer the original standards of craftsmanship in metal . . . the same critical attention to detail. Functional, contemporary design and great advances in finishes, however, provide standards of strength, durability and cleanliness that we didn't think were possible 50 years ago. And that's the Sanymetal story . . . improvement where it counts while maintaining pride in workmanship!

PORCENA... GLASS HARD ...JEWEL BRIGHT =THE ULTIMATE FINISH



Disposal Unit Recessed Into Compartment Panel

Detail of Mechanical Anchoring System

Sanymetal Porcena is as impervious to cigarette burns, scratches, acids, caustics and corrosion as glass because it is glass . . . glass-on-steel to retain its gem-like luster and beauty for several lifetimes. Porcena installations include fittings and hardware that blend at all junctures—smooth, flush, no exposed edges. Edges are trimmed with gleaming stainless steel.

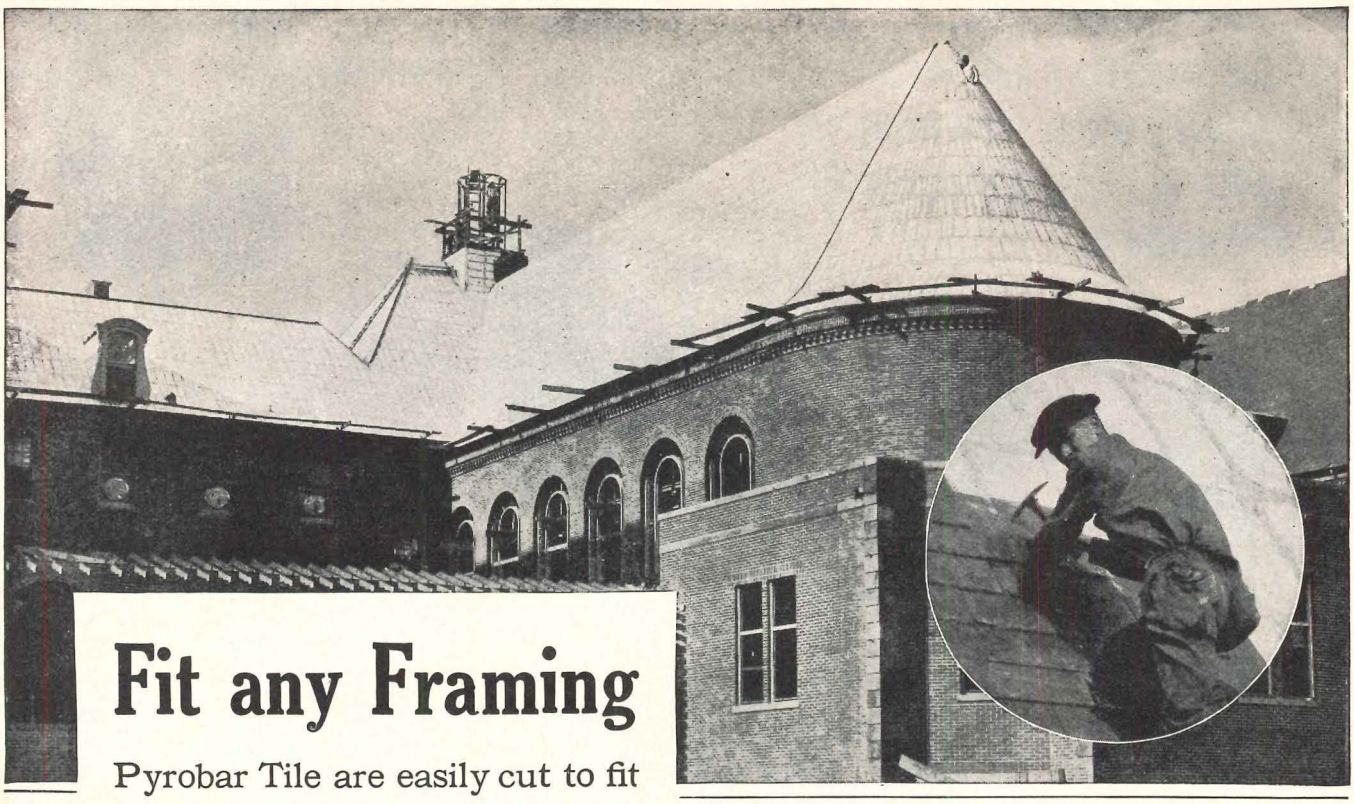
Wall-supported Sanymetals provide easy floor cleaning and virtually unlimited design versatility. Easy, positive, mechanical anchoring to masonry walls assures strong, rigid installations. "Wedge" panel design permits recessed accessories.

This combination of finish and style provides the unequalled . . . the ultimate restroom installation . . . Sanymetal, 1701 Urbana Rd., Cleveland, Ohio.

THE Sanymetal PRODUCTS COMPANY, INC. 1701 Urbana Road, Cleveland, Ohio 44112

Sanymetals®

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Fit any Framing

Pyrobar Tile are easily cut to fit around monitors, dormers and skylights. The light-weight, gypsum units also are erected quickly and economically on steep pitched roofs and curved surfaces.

A Pyrobar roof deck, owing to its low conductivity, reduces heating costs to a minimum. It is fireproof, non-sweating and permanent; provides excellent light reflection in factories.

There is a type of Pyrobar Tile for every roof design. Our book, "Architectural Data on Pyrobar Roof Construction," has information especially helpful to specification writers and detailers. We will gladly mail you a copy on request.

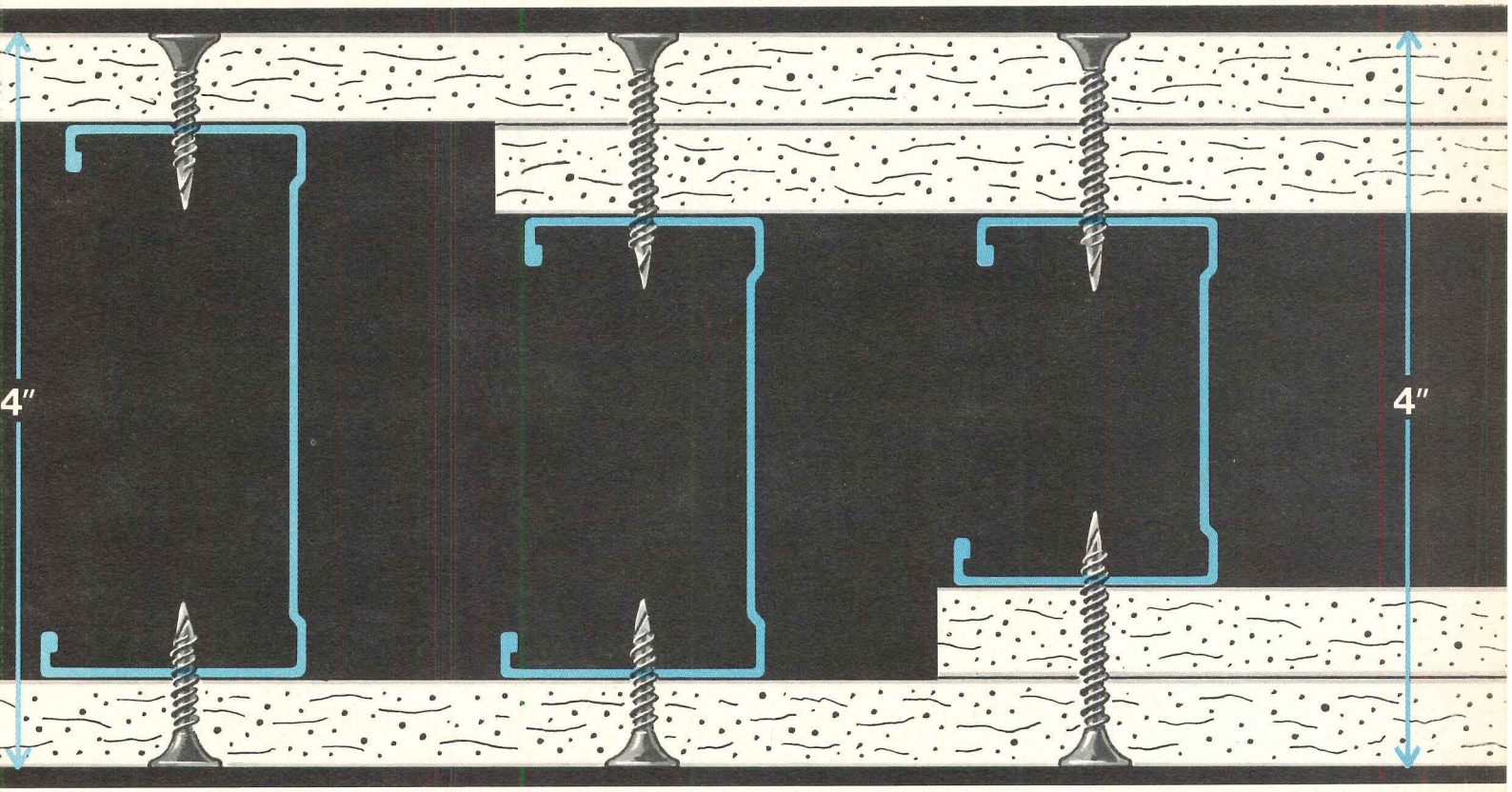
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World's Largest Producers of Gypsum Products
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PYROBAR
ROOF TILE

U.S.G.

Pyrobar Roof Deck on Seminary, Roman Catholic Church of the Diocese of New Orleans. Architect: Allison Owen

Series "4"
the four-inch wall that does it all.



NEW USG® METAL STUD DRYWALL PARTITION SYSTEMS, with *one constant 4-inch out-to-out dimension,* simplify design, speed layout, materials handling, installation. For all non-load bearing interior walls, you specify lightweight Series "4" with *studs in three widths,* 24" o.c. Single or multiple layers of ½-inch SHEETROCK* SW FIRECODE* "C" Gypsum Wallboard complete the systems. Add 1½-inch THERMAFIBER* Sound Attenuation Blankets for higher STC. Systems save floor space. Cut material costs. Provide all fire and sound ratings commonly required. One throat size for all door frames. Openings in studs provide plumbing and electrical chaseways. SHEETROCK SW keeps walls virtually free of joint imperfections.

*Reg. U. S. Pat. Off. U. S. Patent No. 3,435,582 for SHEETROCK SW

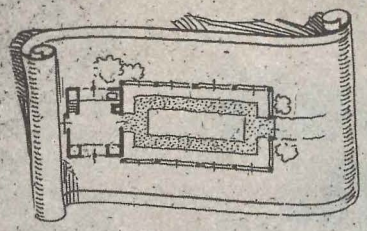
PARTITION THICKNESS	STUD SIZE	½" WALLBOARD LAYERS	1½" SOUND BLANKET	FIRE RATING**	SOUND RATING STC	COST INDEX
4"	3"	2	—	—	37	51
4"	3"	2	Yes	1 hr.	43	65
4"	2½"	3	—	—	41	68
4"	2½"	3	Yes	1 hr.	49	82
4"	2"	4	—	2 hr.	45	86
4"	2"	4	Yes	2 hr.	52	100

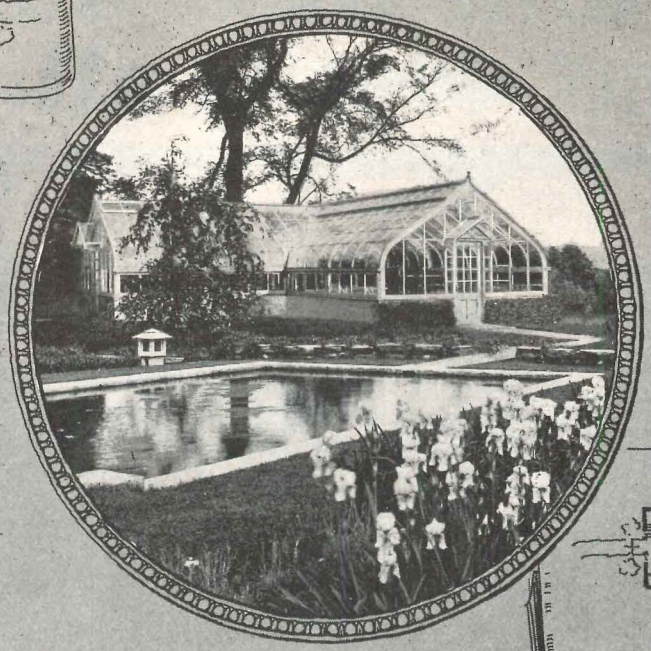
**Estimate based on engineering analysis of tested assemblies with similar construction.

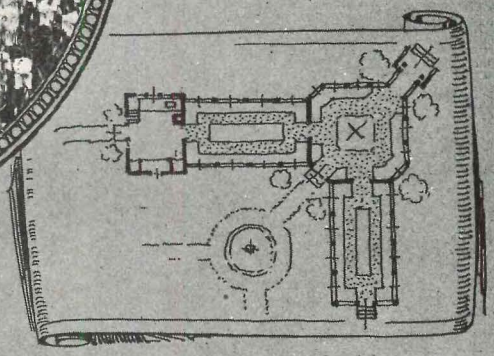
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Ask your U.S.G. Architect Service man for details, or write us at 101 S. Wacker Dr., Chicago, Ill. 60606, Dept. PA-06.

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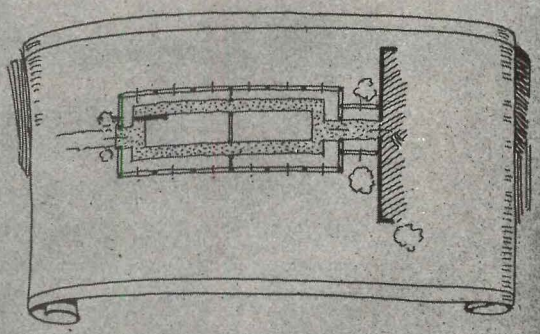


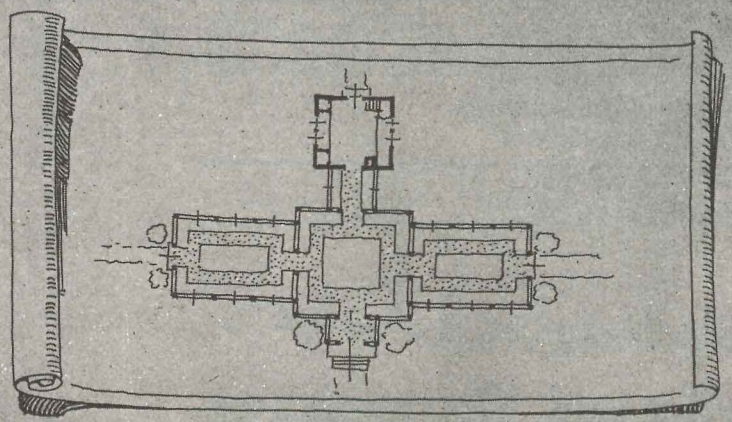
Announcing

An Important Series

IT HAS to do with the planning, designing and equipping of glass enclosures of the greenhouse and conservatory type.
It will include plans, elevations, sections and structural features.
It starts with the next issue and continues for probably twenty-four or more.
It will cover greenhouses or glass gardens, conservatories and sun parlors.
Solar bathing rooms and glass enclosed swimming pools; aviaries and aquatic enclosures—and not the least of all, children's glassed-over play places.

The renderings will be done by Vahan Hagopian, who has done such notable work in the Granite Association's series.
Reprints of each plate will be made and issued every six months.
A suitable binder for the collection will be furnished with the first mailing.
Kindly send your request for the complete series, which will be furnished with our compliments.

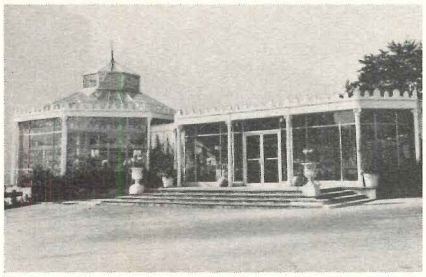




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GLASS DESIGNS ANYONE?



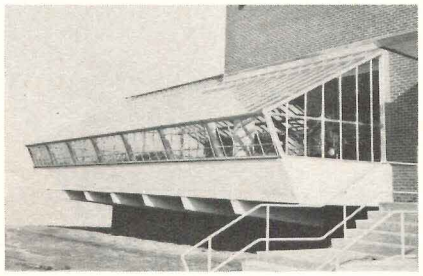
Display Dome



Botanical Garden



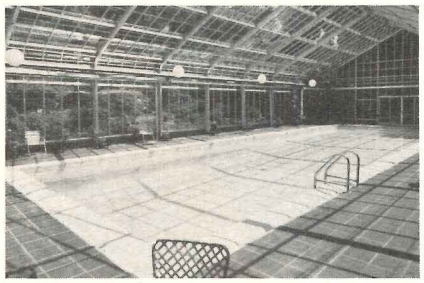
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Horticulture Transition House



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We are ready at any time to assist you in developing a custom plan for any type of glass or glazed structure, keeping in mind that *there is never any charge or obligation* in consulting us about your project. Write us at the earliest, or phone collect if you prefer to alert us immediately. It is true over the years that we have saved considerable time, money, and effort in behalf of some of America's leading architects and their clients through our helpful technical counsel in the preliminary planning stages. But that's in the past. Now, how can we help you . . . soon?

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Ordinary Concrete Floor

Masterbuilt Metallic Hardned Concrete Floor



A 14 Year Test Tells

"Resurfacing the floor with ordinary concrete would have cost $792.00. Instead we resurfaced with Metallic Hardner at a cost of $871.20. This surface is still in good condition after 14 years in spite of an increased volume of traffic. The saving on up-keep in this period has paid for the Metallic Hardner five times over." . . . Extract from page 15 of "PLAIN TALK ABOUT CONCRETE FLOORS."

Results of over 15 years of practical tests under actual industrial traffic conditions are summed up in this graphic, concise survey. Invaluable data on initial costs and maintenance costs; reports from over 400 plant owners and engineers.

This book which points the way to better concrete floors is sent upon request to architects, engineers, contractors, building owners and managers.

THE MASTER BUILDERS COMPANY

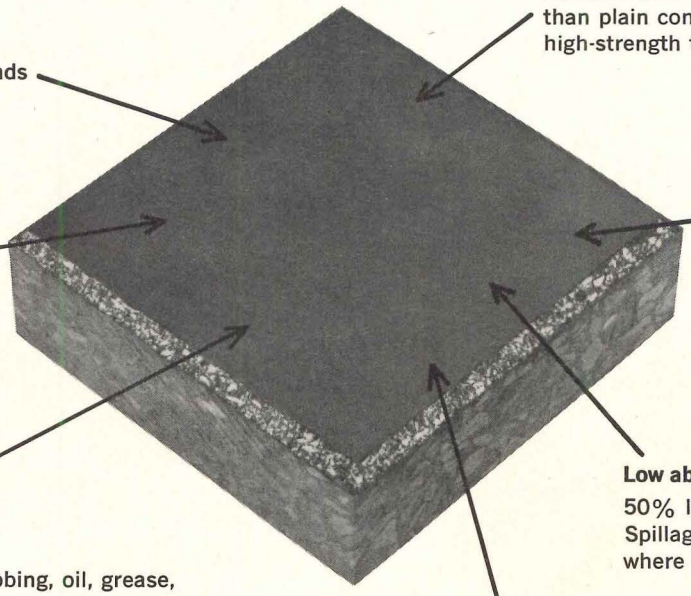
Euclid Avenue at 71st Street — Cleveland, Ohio

From unretouched photograph of floors—Northwestern Terra Cotta Co., Chicago, Ill.

BETTER CONCRETE FLOORS

Reprinted from PENCIL POINTS July, 1928

Here is why the Masterplate "iron-armoured" concrete floor is still the most widely used heavy duty industrial floor... over a billion square feet installed in rolling mills, metal fabricating plants, warehouses and countless areas where the floor plays a vital role in production and profit.



Abrasion resistant surface.
As much as 8 times more wear-resistant than plain concrete, 4 times more than high-strength toppings.

Tough, ductile surface.
The iron-armoured surface withstands impact without fracturing.

Low friction surface.
Requires less man power or motive power to move loads over it.

Non-dusting surface.
The properly cured ductile surface does not dust. Won't contaminate products, harm precision equipment, or abrade wheel bearings.

Low absorption surface.
50% lower than plain concrete. Spillage remains on the surface where it's easily removed.

Easy to clean surface.
Withstands repeated scrubbing, oil, grease, alkali, steam, most strong cleaning compounds, and many industrial chemicals.

Slip resistant surface.
Iron-armoured surface can be given a durable non-slip finish, when desired.

Economical floor.
Installed for only 20¢ to 25¢ more per square foot than plain concrete floor.

Masterplate is a specially processed metallic aggregate combined with a high-strength cement binder. Applied as a dry shake over freshly floated concrete, it produces a high-strength "iron-armoured" surface about ⅛" thick. Masterplate should be used when constructing new industrial floors or when resurfacing or replacing costly worn-out floors. For more details, call your local Master Builders field man, or write Master Builders, Cleveland, Ohio 44118.

MASTERPLATE®
manufactured by
MASTER BUILDERS

On Readers' Service Card, Circle No. 449

MILLS METAL



Announcing

MILLS METAL *General* *Office* PARTITIONS

Write for our Descriptive Literature on Office Partitions

Ask for our Literature on
MILLS METAL
Toilet Partitions
Industrial Partitions
General Office Partitions
Cubicle Partitions
Shower and Locker Room Partitions

This new Mills Metal Product enables you now to specify a steel partition possessing all the architectural features of any hand built wood installation.

Take each feature of this new general office partition under separate consideration and you find that it excels as to strength, appearance, cleanliness, richness of finish, supreme usefulness and economy in cost.

Attractive glass sizes, full panel doors, the concealed wiring feature, the baked on enamel finish and simplicity of unit erection are all found in this Mills Metal Product.

Send for our new literature just off the press—fully describing it.

Our Engineering Department is at your service to suggest practical layouts using Mills Metal standard units to give you an economical and attractive installation.

Our nearest Mills District Representative will gladly call and serve you, entirely without obligation.

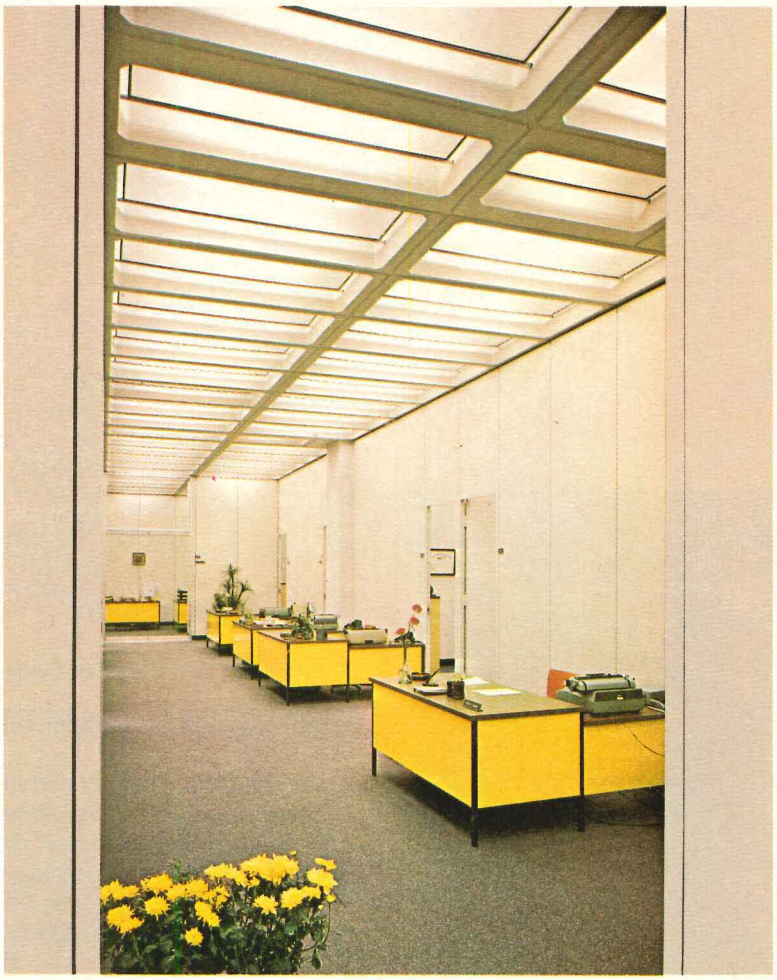
The Mills Company

WAYSIDE ROAD AT NICKEL PLATE R R. MILLS METAL CLEVELAND, O.

On Readers' Service Card, Circle No. 435

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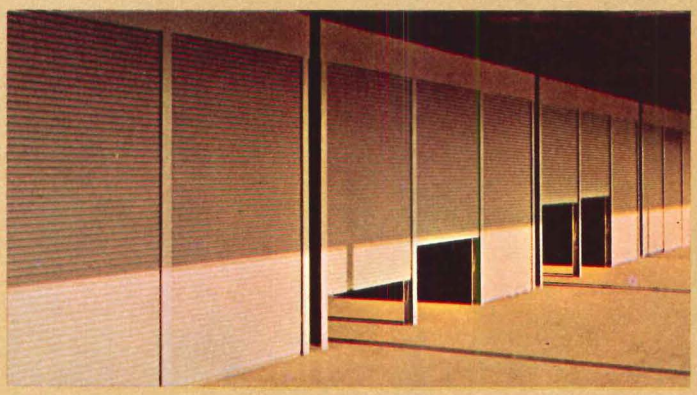
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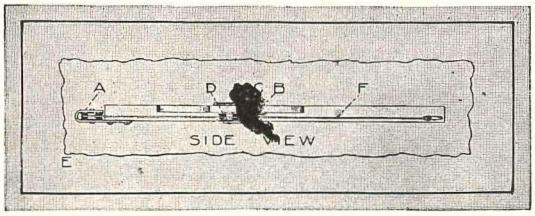
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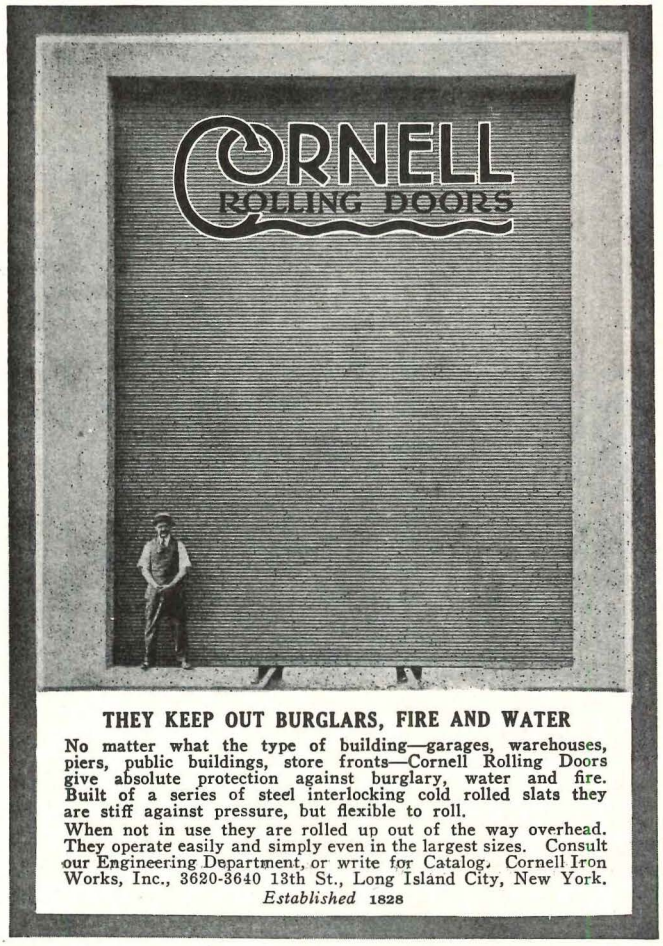
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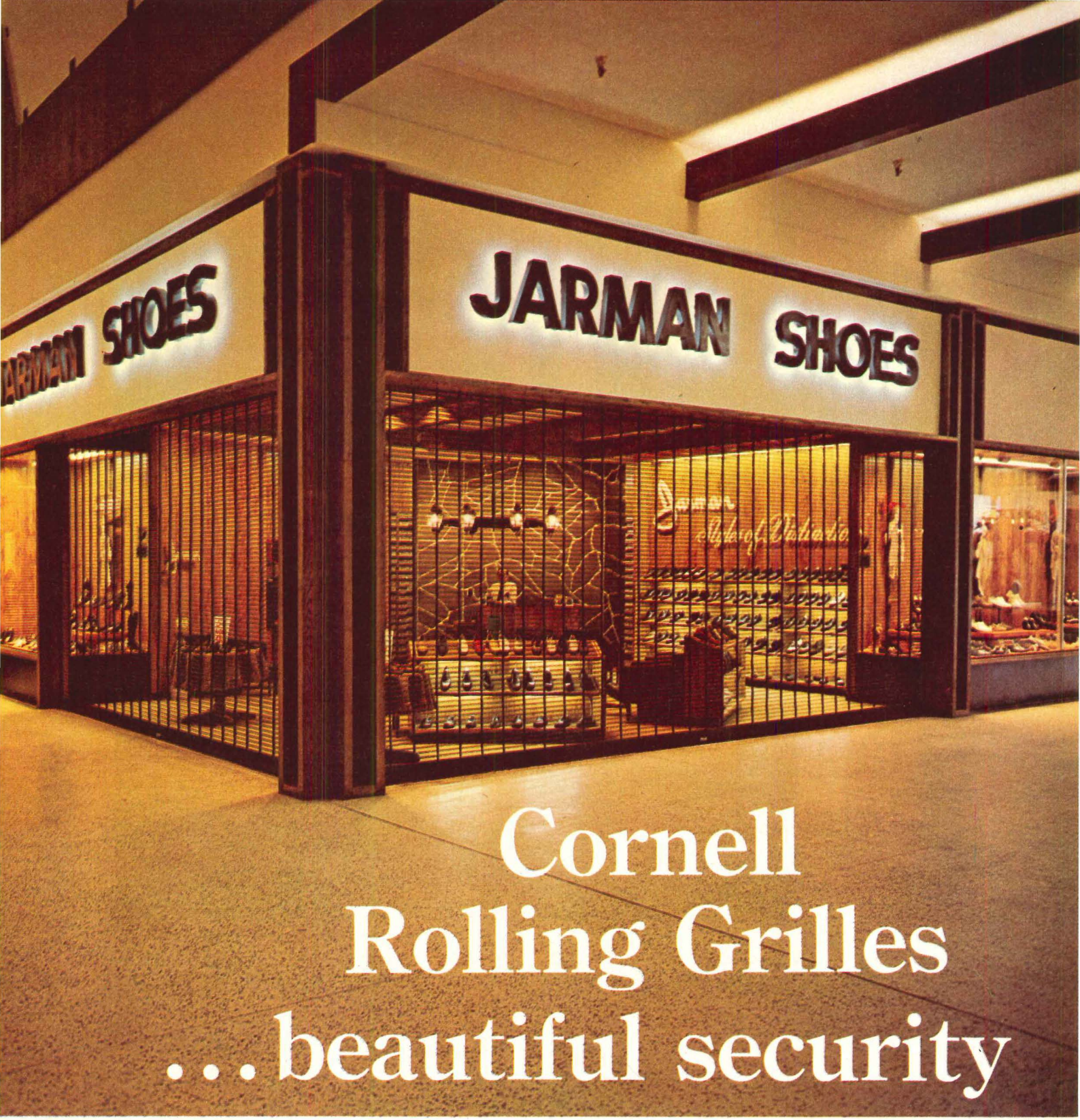


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Berven Carpeting vs. George's Birthday

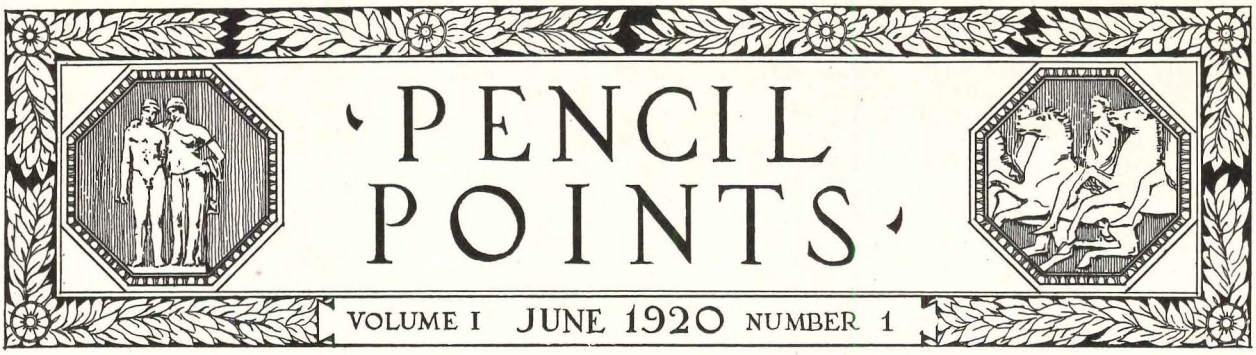
Every grade school throws George a party. And half the party always end up on the floor. Great for school kids. Bad for school budgets. To keep maintenance costs down may we suggest carpeting that Berven calls Extra Point. Extra Point is made with new Anso®—the nylon fiber that fights back. Anso is tough enough to resist extreme soiling. Yet for all its toughness, Anso has rich color and texture. And it wears so well, Allied Chemical guarantees it for five years.* If you'd like to know more about new Anso nylon, write to Berven of California, 2600 Ventura, Fresno, California 93717.

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*This carpet is guaranteed by the Fibers Division of Allied Chemical Corporation. If it is properly installed and maintained and the surface pile in any given area wears more than 10% within 5 years, it will be replaced at our expense. The guarantee does not cover tears, burns, pulls, cuts, or damage due to improper cleaning agents or methods.



INTRODUCTORY

FIRST, we wish to thank all those who have so promptly expressed their approval of PENCIL POINTS as a regular monthly magazine by sending in their subscriptions to begin with this, our first issue. The response has been most generous and shows beyond the possibility of a doubt that a journal edited for the drafting room is greatly needed.

PENCIL POINTS will be devoted to matter of interest to draftsmen, designers and specification writers. The demand for a journal such as PENCIL POINTS was suggested by the interest that was shown throughout the country in the reproductions of work by master draftsmen in the leaflet issued under the same title for the past year and a half in the interests of THE ARCHITECTURAL REVIEW. We feel, therefore, that in offering PENCIL POINTS at this time we are meeting a very real need.

Our editorial program has been mapped out for the most part for the coming year and will give to our readers a wealth of valuable material. The plates will include, as in the present issue, reproductions of detail drawings from the offices of architects of the highest standing, as well as drawings of both ancient and modern work from all parts of the world.

Mr. Paul Valenti's lessons in perspective drawing, of which the first installment appears in this issue, will be published serially and will run through many months. News from draftsmen's organizations, architectural clubs, architectural schools, as well as items of interest of a personal nature, will have an important place in PENCIL POINTS. The "Queries" Department will supply answers to questions by reference to reliable sources of information.

Contributions, in the form of articles coming within the scope of our editorial plan, drawings of merit, and important news items, are solicited and will receive the careful attention of the editors. PENCIL POINTS is to be edited *with* our readers as well as *for* them, and the co-operation of the entire field is sought in order that we may produce a journal of the greatest interest and value to those it seeks to serve. We are open to suggestions for new departments and for the improvement of PENCIL POINTS in any respect. As the subscription list grows the amount of material we can include in each issue will increase. We therefore hope that all the readers of PENCIL POINTS will tell their friends about it so that we may secure, as quickly as possible, a volume of readers which will justify us in expanding the paper to the mutual advantage of all concerned.

In these times it is highly desirable that publishers, editors and readers should work in the closest harmony to meet in the best way the many new conditions facing us all.

EARLY ISSUES OF

PENCIL POINTS

WILL CONTAIN

Architectural Details by John Russell Pope; Delano & Aldrich; H. Van Buren Magonigle, and others.

Articles on the Use of Models for Architectural Detail by Frederick C. Hirons; on Historic Sources of Design by Richard F. Bach and William M. Ivins, Jr., of the Metropolitan Museum of Art; on Perspective, by Paul Valenti.

Reproductions of Drawings of Ancient and Modern Works.

"The Specification Desk" will begin in the July issue.

News from the Field.

During the past fifty years, products and pollution in the United States have increased in almost geometric progression. During the past twenty years alone, the output of goods and services has multiplied as much as it grew from the time of the landing of the pilgrims to 1950, and we can look forward to a 50 percent productive increase during the next ten years, according to President Nixon. This means more of everything; more automobiles, toasters, toilets, tamales, tootsie rolls, tissues, and more rivers that burn, air you can cut with a knife, and compacted garbage ski slopes.

The last half century has seen us draw nearer and nearer that reckoning with the moment of truth; the cutoff point of progress where the inescapable iron law — production equals pollution — threatens to condemn us to asphyxiation by our own contamination.

Warnings on the growing ugliness of our planet have gone unheeded; undetected as the purulent matter of a festering environment. Now it is almost too late as the disease grows to epidemic proportion. If we still have alternatives, they are almost a choice between asphyxiation or intensive treatment at the source of the disease.

If we choose survival, it may well cost us the loss of our most cherished institutions, among them the affluent, consumptive lifestyle. Sex, one of our more popular national sports, may have to be curtailed in favor of less productive activities as overpopulation makes motherhood a dirty word. It will have to be recognized that the sacred profit system that sets production priorities also determines levels of pollution. We will have to examine the omnipotence of the market place, which has shown a remarkable ability to price everything without concern for the ecological values of anything. We will have to recognize that our all-seeing technology is, in reality, blind as it smells out production possibilities, oblivious to the odor of its own rotting discards.

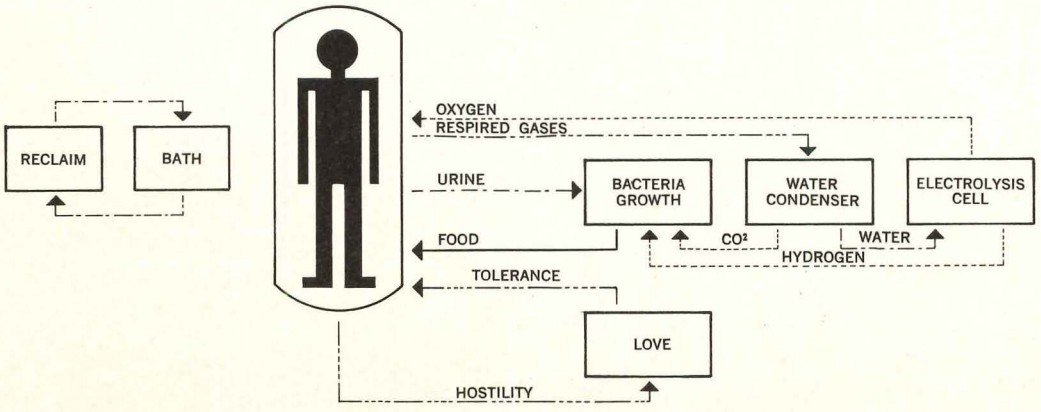
We will have to treat our sewage as if our life depends upon it; it does. We will have to devise a much less ludicrous bookkeeping system than the one we now employ to assess our national wealth. For example, a factory that produces $20 million worth of goods may also, as a by-product, cause ecological infection requiring subsequent health care expenditures of $30 million. Today's peculiar bookkeeping lumps product and pollution infection; eroded metal repair, treated lung cancer, asthmatic sanitoriums, cleaned waterways as increases in Gross National Product.

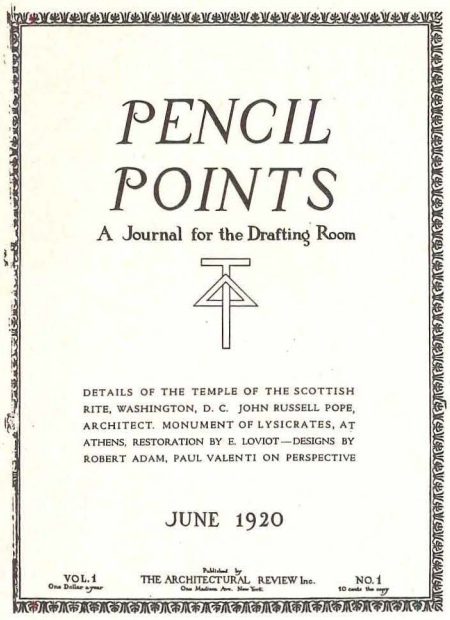
We very well may have to consider who pollutes on whom as a Civil Rights issue. The production of artifacts to satisfy the artificially stimulated needs of an affluent minority in a world of real need is at best gross selfishness, at worst economic genocide, drowning the have-nots in the garbage of the haves.

The vital task of the designer of the seventies will be design for survival. The rational search of architectural science during the past ten years for pattern languages, modules, form language, must be expanded in the seventies to include the relationship of production to pollution within its perimeters. Environmental contamination ratings of manufactured objects must become a design factor as much as factors of structural safety and fire ratings. How production machinery uses energy, discharges waste, and the final disposition of the artifact itself must be encompassed in the designers' professional responsibilities.

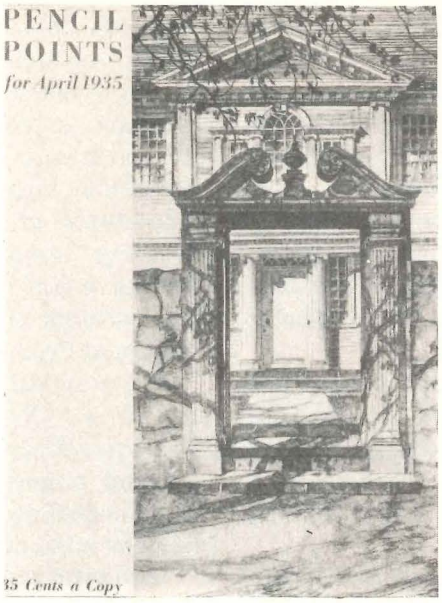
The whole earth ecology is the design parameter of the architect of the seventies, whose ultimate professional concern is the preservation of the planet's life support system including every living thing, from aardvarks to zebras, with man somewhere in between.

Forrest Wilson

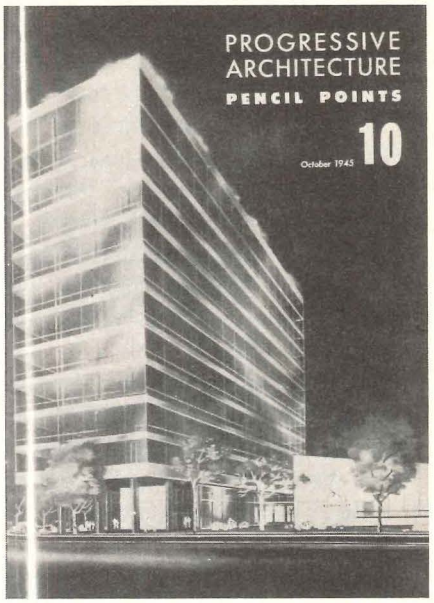




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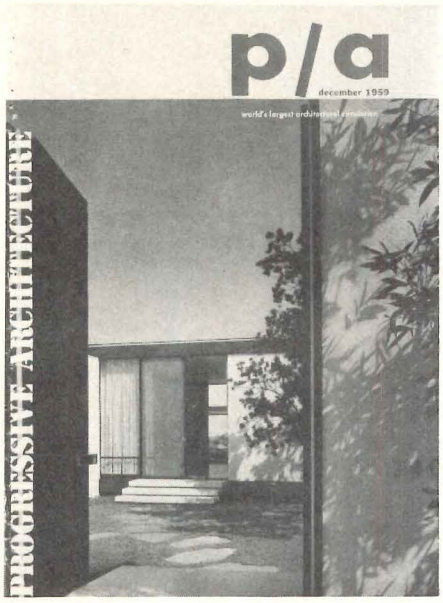


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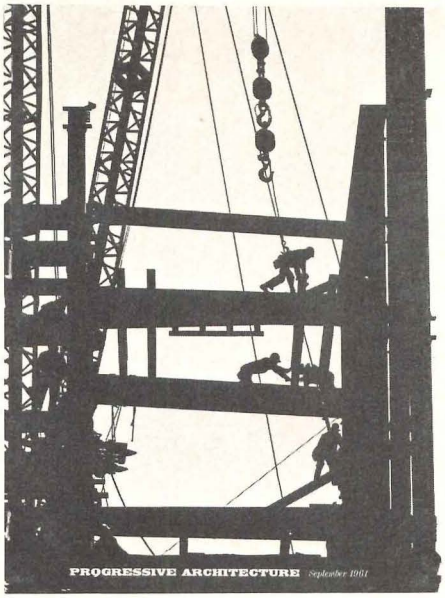
50 YEARS...

Anniversaries, because they arrive rigorously at the stroke of ten or twenty-five, are always arbitrary; they ignore the organic, or even random, patterns of growth experienced by individuals and institutions. In a literal sense, Progessive Architecture has enjoyed continuous publication since 1920 and this year celebrates its fiftieth anniversary. But architecture has changed radically during this half century and changed at an ever-increasing pace, so that the past five years have witnessed a Copernican revolution in the profession. Five years ago, under the editorship of Jan Rowan, P/A, too, reached a significant turning point with the publication of *Toward the Third Millenium*. That issue, which began with a broad evaluation of contemporary culture, established the groundwork for a reevaluation of the profession in an entirely new light and sketched the outlines of a pattern for the coming years.

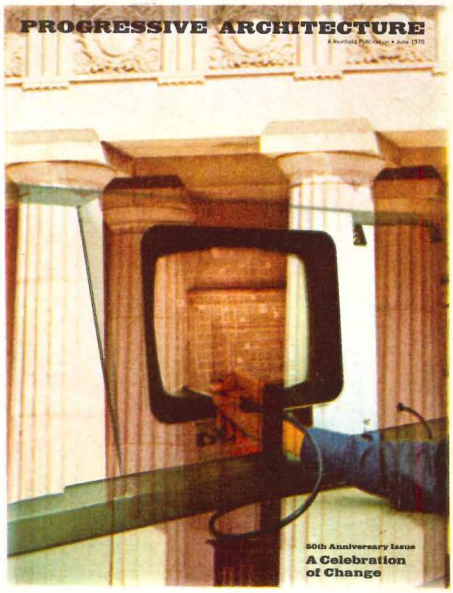
At this half century of publication, the new tradition is continued in a critical reexamination of ourselves and of the profession. We begin, quite properly, with ourselves, attempting to evaluate our own contribution within the narrower context of architectural practice. Two articles follow that scan the past for coordinates in a prospect of the future. One, on architectural education, traces the students' changing role from *solving* problems of purely academic inter-



50's



60's



70's

OF CHANGE

est to *posing* problems whose solutions demand a multidimensional creativity grounded in reality. The vernacular tradition in interior design is then compared with high-fashion history in a survey that includes the Superstyles P/A first identified.

With the past researched and the present redefined, a series of three articles attempts to outline the future from important recent trends. First, in a broadly philosophic view, the new architect of the seventies — the third generation of a modern dynasty — is described in terms of his ancestry, his methods, and his goals as a man concerned with process and the values of a new quality of life. More specific techniques are discussed in a specially commissioned article that explores the interaction of designers and computers in creating an architecture for diversity and change. The possibility of a future is the subject of a concluding article on ecology — a realm in which Utopian dreams soon become concrete imperatives for a dangerously suicidal planet.

In dedicating this issue, P/A dedicates itself to a future of change, unstable, indeterminate, without the security of accurate prediction. It thereby identifies itself with the future of architecture and with the proposition that without change and growth there is only stagnation and decay, for in constant redefinition alone lies the possibility of a future.


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AIA JOURNA

Architectural Journalism Analyzed: Reflections on a Half Century

In the last fifty years, architecture and architectural journalism have changed drastically. The twenties saw the profession only beginning to emerge from the Beaux-Arts approach that typified education and architecture in America, Chicago School to the contrary. At the same time, journals were emerging from so-called "plate" magazines filled with photographs of Beaux-Arts buildings that architects used for direct copying. Over the ensuing fifty years, American journals have shifted radically in both form and content. Today architectural journals are at the brink of their most dramatic reassessment as they try to expand with the demands on the architectural profession itself. There is a crisis in understanding the role of the magazine, and in determining how architecture should be defined (or redefined) by the architectural press. The issues often polarize into the traditional treatment of architecture as a formalist solution for one building or a group of buildings, versus architecture as an embodiment of physical and nonphysical elements, processes, and ideas. If you refer the question of what a magazine should or should not be to a number of architects, educators, researchers, and writers, the range of answers is overwhelming. But — before we can know who we are and where we are going, we should go back and see where we came from.

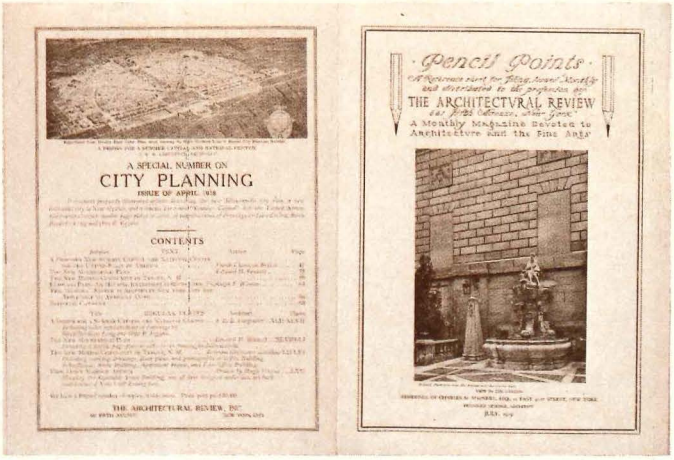
Our Anglo-Saxon Ancestry

American magazines were generally patterned after British architectural journals, their predecessors by several decades. As early as 1770 the *Builder's Magazine* appeared, but this was, in actuality, a construction pattern book; the first "real" architectural journal is considered to be *The Architectural Magazine* published in 1834. This magazine, which only lasted five years, listed among its goals "improving the public taste in architecture generally by rendering it a more intellectual profession and by recommending it a fit study for ladies." As the English writer Frank Jenkins has pointed out, the pronounced advent of English architectural journals came in the 1840s with the publication of three periodicals: two of the three were completely technical; the third, the famous *Builder* — the leading magazine of the 19th Century — was known for its preference for Gothic architecture and its socially conscious editorials that urged reform in design of public playgrounds, insane asylums, workhouses, etc.

By 1896 *Architectural Review* appeared, the penultimate publication for the man of taste. Architecture, arts, and crafts were all discussed in its pages, with content less technical but more critical. In the late 19th Century, there was an increased differentiation in the types of buildings the magazines published; for example, *The Studio* followed Art Nouveau movements in Berlin, Vienna, Brussels; *Building News* promulgated Queen Anne picturesque, *Architectural Review* backed neo-Georgian. Although some magazines remained committed to revivalism of past architectural styles, in subsequent decades *Architect and Building News* began to investigate the Scandinavian expressionist architectural movement; *Architectural Review* came over to the modern cause in the twenties.

Our Childhood and Adolescence

Pencil Points — the original *Progressive Architecture* — was "born" in 1920 of the American architectural journal, *The Architectural Review*. Its genesis was as a house organ distributed to architects. The leaflet first contained a monthly index to *The Architectural Review* and later, a selected rendering as well. The art of rendering and draftsmanship seemed to be of such interest that The Architectural Review Publishing Co. decided to issue a magazine devoted

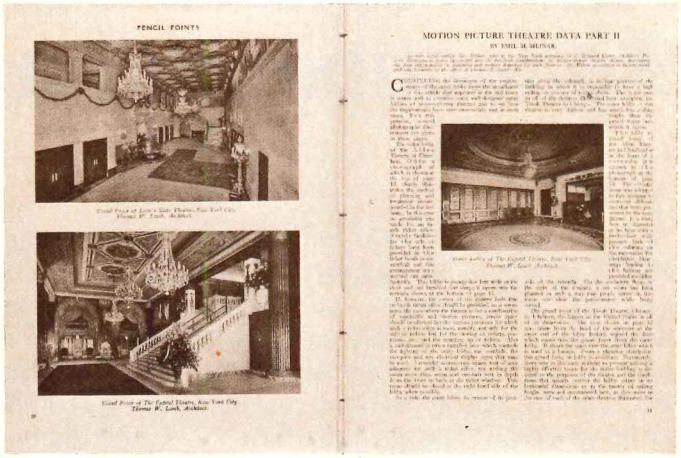


exclusively to that subject under the editorship of Eugene Clute (1920–1925). Aimed at draftsmen, designers, and specification writers, the magazine was unique. It was the first magazine to break out of the plate-book mold and offer special educational services. Articles gave pointers on drawing and rendering perspective, scale, proportion, etc., as well as detail drawings from "offices of architects of highest standing." As former P/A publisher and former President of Reinhold, Philip Hubbard described the premise of *Pencil Points:* "To be worthwhile, a magazine must fulfill a communication need that no other magazine does or, if it does, do it better."

From their inception in 1869 with the short-lived *Architectural Review and American Builder Journal,* American architectural journals had not been intentionally educational — especially in providing information that a draftsman or designer might have missed in his training. At first, magazines were principally weekly broadsheets concentrating on technical news. When *Architectural Record* appeared in 1890, it represented a radical departure from previous American magazines. A quarterly journal that included historical articles, poetry, and serial fiction, its particular contribution was its consistent publication of polemical articles on the state of architecture, such as articles on faddishness and obstacles to good design. Also in 1905 *Record* responded enthusiastically to Frank Lloyd Wright and in 1907 called for an indigenous architecture. Yet despite these articles and those on the Chicago School, the magazine remained dedicated to the Beaux-Arts aesthetics in Europe and America.

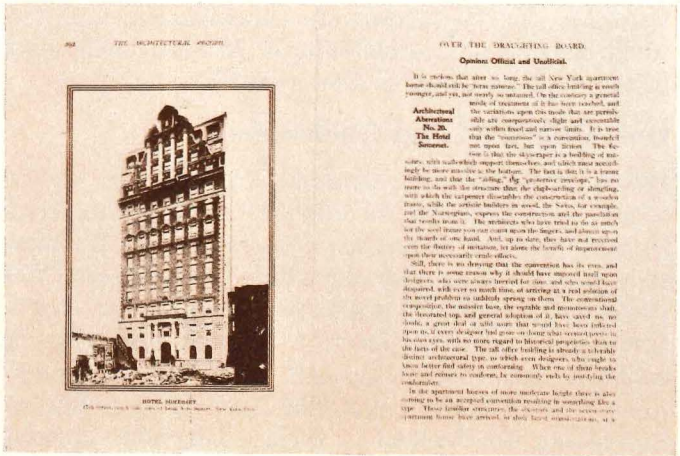
After 1900 American architectural magazines became decidedly domestic in their selection of buildings but still favored architecture with French overtones. By the end of World War I, the high number of historical articles had diminished in most journals, and there was an increased interest in new building methods (but not in European avant-garde architecture).

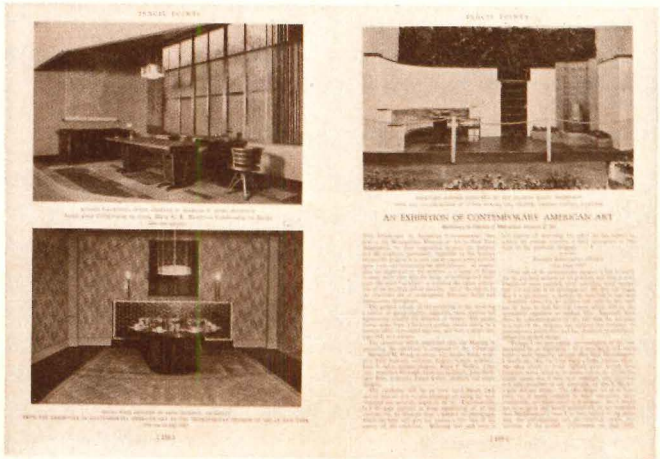
Meanwhile, back at *Pencil Points:* articles on drafting may have been emphasized but, from its inception, the magazine's contents were not restricted solely to the subject. In 1921 *Pencil Points*



ran a series of articles on architectural education in America; in 1922 it presented a series on a new building type — the motion picture theater. "Modern" interiors appeared in 1929, although they bore more of an affinity to the Paris Exposition of 1925 than to Bauhaus developments. The interiors, taken from an exhibition at the Metropolitan Museum of Art, included those designed by Raymond Hood, Eliel Saarinen, and Ely Jacques Kahn.

During the Depression, the editor, Russell Whitehead (1925–1936), realized the profession was changing, and a magazine for draftsmen was no longer fulfilling a necessary function. "The Monograph Series" of technical articles on American his-





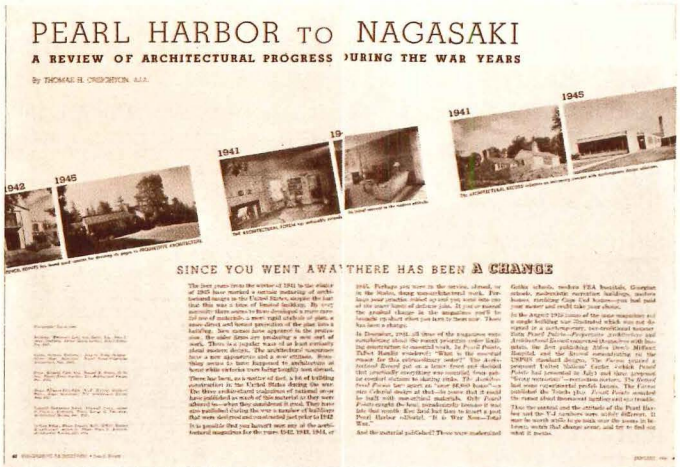
toric architecture was instituted by Whitehead. But interest in important current architectural issues became even more apparent. For example, in 1932 *Pencil Points* ran a series of articles in which architects discussed merits of the International Style. While the International Style began to infiltrate the pages of American journals as early as 1930, throughout the thirties the most prevalent style published was the curious monumental neo-Egyptian architecture favored by governments here and in post-Bauhaus Germany. This same decade witnessed an emphasis in the journals on new materials, methods, and analyses of office practice. Also during the thirties, all American architecture journals began to devote pages to housing issues and city-planning.

Pencil Points entered World War II with an ambivalent attitude toward architecture. It emerged with a complete commitment to the modern idiom, and with a new name and a new editor. Kenneth Reid, editor from 1936, left in 1947 to resume practice in Vermont, and Thomas Creighton, an architect with the firm of Alfred Hopkins and Associates, succeeded him. Creighton initiated the special survey article in the January 1946 issue with an in-depth report on American architecture. Entitled "Pearl Harbor to Nagasaki: A Review of Architectural Progress during the War Years," this article presented examples of all types of building (before and after modern) drawn from P/A, *Architectural Forum,* and *Architectural Record,* to illustrate how architecture — and editorial thinking — had changed during the war.

In January 1950, P/A published a special feature on American architecture from 1900 to 1950: "The Grand Detour." The thoroughness of this article — with sections on construction methods, materials and equipment, architectural practice, and finally design results — was unique to architectural journals.

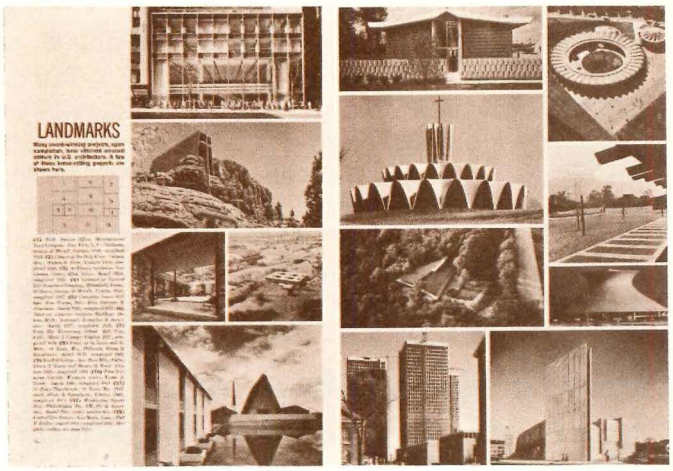
P/A began to actively encourage the design of modern architecture by establishing, in 1946, the Annual Progressive Architecture Awards for the best residential and nonresidential buildings constructed during the given year. In 1951 it initiated a Design Survey of work on the boards slated for construction during the following year. By 1952 an informal jury of three was brought in to help with the selection, and by 1954 the first P/A Design Awards was officially established. The influence that these Design Awards were to have on architecture in America is perhaps best seen by how closely the successive year's entries often mirrored the previous year's awards. On the tenth anniversary of the Design Awards in 1964, a survey of the previous winners found that many of the completed buildings had achieved the status of landmarks.

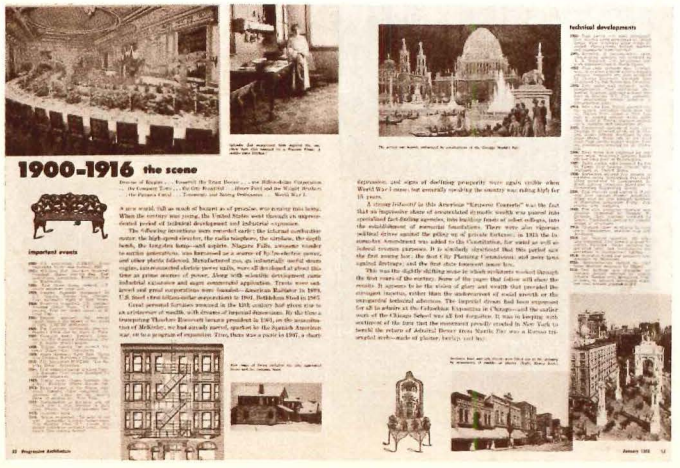
A regular occurrence at P/A during the fifties were seminars with students to discuss and criticize


PEARL HARBOR TO NAGASAKI

A REVIEW OF ARCHITECTURAL PROGRESS DURING THE WAR YEARS

SINCE YOU WENT AWAY THERE HAS BEEN A CHANGE




1900-1916 the scene

jury selections of each year's Design Awards. In fact, under Creighton's editorship, criticism was dealt with emphatically, e.g. the well-known Round Robin critiques in which architects participated.

When Jan Rowan took over as editor in 1963, he continued along the editorial lines Creighton had established. Then, as the third generation of the architects of the modern movement began to define their goals — as the architectural preoccupations of the first and second generation of modern architecture swung away from the intuitively conceived monumental building to environmental planning, with emphasis on the scientific basis for design, the behavioral sciences, performance design, the economic base of the environment as it affects design, even the pro-

fession itself — P/A led in examining these new directions. Issues of note were "Toward the Third Millenium" (December 1966) which won the Jesse H. Neal Editorial Achievement Award for 1967, "Performance Design" (August 1967), and "The New Environmental Professionals" (May 1969). Forrest Wilson, editor for the past year now, is committed to continuing these directions, as well as to exploring and defining new principles and policies for the future.

Crisis of Identity

Despite American architectural journals' accomplishments and contributions to the encouragement of good architecture in the United States, we candidly admit we have not been all we should have been, nor are we now what we hope to be. One thing is clear however: what we hope to *be* and what we should have *been* have less and less connection all the time. As some architectural critics, among them John Margolies, points out, "Architecture is a process for understanding the environment," not the concretization of a desirable reality with constructing formalistic concepts. Margolies cites Hans Hollein's statement that "Architecture is Everything." Naturally this thinking has ramifications about magazines' subject matter and journalistic treatment. In fact, it is already apparent that some magazines have begun to expand the scope of their content and loosen up the format — and with conviction. While formulating goals and establishing precepts upon which future action will be based, it may be useful to go back and analyze what kind of baggage we might be taking with us. Therefore, P/A has solicited opinions on American journals from critics known in the field but not directly associated with any architectural periodical. Their criticisms and descriptions — however negative — are presented in an attempt to confront negative viewpoints that apply to all architectural publications, accept the fact that they have some validity, and examine why they exist.

Seeing Ourselves as Others See Us

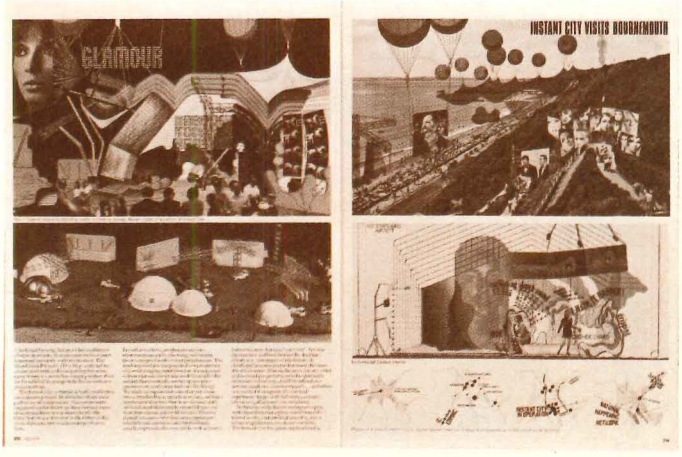
One of the most popular criticisms of American architectural journals is that they are essentially fashion magazines. In August 1959, writing in the *Royal Architectural Institute of Canada Journal*, ("Changing Editorial Policy in American Architectural Periodicals 1890–1940"), Moshe Safdie accused magazines of creating a fashion-show atmosphere to make the reader feel he is missing something if he doesn't read each issue. Furthermore, Safdie asserted, "as magazines become more dependent on advertisers these tendencies increase . . . A statistical analysis seems to indicate that in recent years there is a direct relationship between advertising materials and topics chosen, and it is the tragedy of our age that the policy of these periodicals is so clearly dictated by the advertiser. Financially the magazines are dependent upon him, and this forces the editors to ensure a large number of readers of such a nature as to satisfy the advertisers' markets." Ada Louise Huxtable is also wary of the close tie between advertiser and editorial content which, she asserts, is particularly evident in issues on materials and methods.

Another fault, Mrs. Huxtable points out, is the "scoop" psychology: each magazine rushes to give the glossiest presentation first to the latest building. Often, magazines won't touch what another has already covered.

As other architects have pointed out, scooping puts the architectural magazine in a compromising position. Since magazines want to publish architecturally important buildings first, they woo the architects to obtain exclusive (first) publication rights. This means that each magazine tends to line up its own team of architectural "stars" who keep feeding them material as fast as it can be photographed.

Magazines hesitate to criticize buildings lest they offend the architects, who may refuse to provide information for future articles. Peter Eisenmann, Director of the Institute for Architecture and Urban Studies, claims that part of the problem is the architect's attitude: the architect who aspires to quality in his work should expect and welcome his building's being singled out for some reasonable level of criticism. James Marston Fitch, in the June 1956 issue of P/A, ascribed the victory of modern architecture in the United States to critics and editors who had been using those values embodied in modern architecture as standards for judging a building. Yet he warned readers of the critic who depends too much on a literary form developed for novels and painting, since the subject matter is not literature and not art. "Architecture operates according to a set of laws, particularly its own, incomparably more complex than those which govern the fine arts."

Peter Eisenmann feels that the tendency of architectural criticism is to be metaphorical and imprecise and, therefore, of little value because it is subjective. He attributes its presence to the fact that modern architecture came over here as a style; few have really understood it. This lack of criticism Eisenmann also blames on a general lack of a climate for the exchange of ideas — in schools where architecture is taught, among architects themselves,

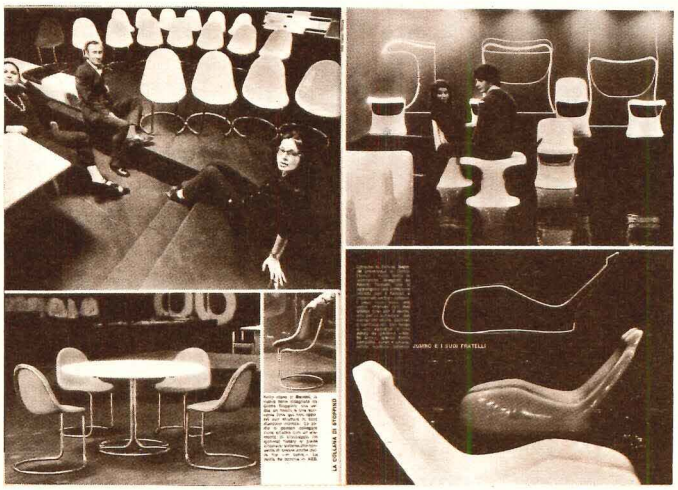


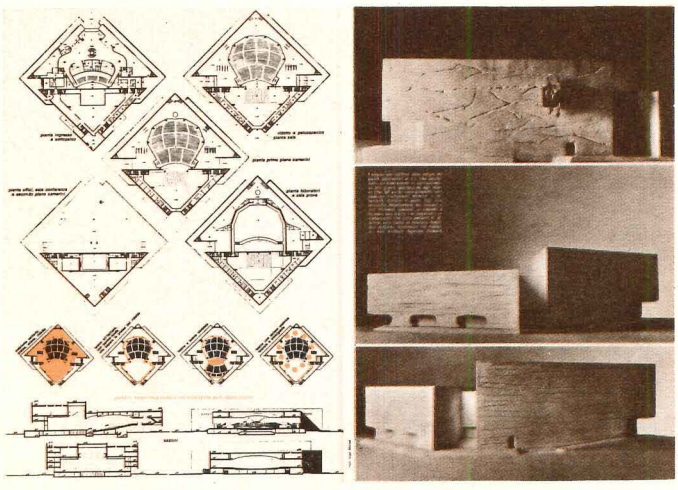
as well as in magazines.

According to Kenneth Frampton, a professor of architecture at Princeton and contributor to England's *Architectural Design* magazine, when American journals publish ideas, they deal always with issues that are of immediate practical interest to the architect, not with theoretical content of other fields that might indirectly affect his methodology or approach.

He feels that presenting complete comprehensive graphic documentation of the building's plans, sections, elevations, and details, as well as more information on its products, is too often ignored in order to devote more space to dramatic photographs. If we are going to play the role of seducers, he adds, we should then seduce in the manner of *Domus*, with its superlative use of colors and graphics (although he concedes *Domus'* function is different from its American counterparts).

Don Stull, a Boston architect who has been successful in involving the community in his work in the





ghettos, states that journals do not deal with the realities confronting architects — the obstacles they must overcome such as building codes, zoning ordinances, red tape, lack of funds, etc. While he admits this might make fairly frustrating or depressing reading, he claims, "Twenty years of frustration, and then maybe architects will see that something gets done."

Another fault of journals is that they do not make use of architectural studies currently conducted by research organizations, points out architectural researcher, Ralph Wilcoxen.

Are Things as They Appear?

In dredging up many of the asserted shortcomings of architectural magazines, it is desirable to hypothesize the causes, although it is not possible to determine completely what has guided the editorial decisions of all American architectural magazines over the last fifty years.

It is undeniable that magazines are interested in readership. Although they depend financially on product advertisers instead of readers, nothing sells the advertiser like circulation figures. The advertiser must also be convinced that the *readers* of the magazine are the ones who *buy* the products. Thus, circulation is necessarily restricted to architects and persons related to the profession. The editorial content of the magazine elicits occasional response from advertisers (as it does from architect-readers) but that, in itself, does not shape editorial content. (Of course, here we speak for P/A only.) Advertisers are more interested in learning their ads are reaching their market. The editorial content then, may be more or less determined by what magazines think the reader wants or the directions they believe are valid.

The magazine, of course, wants to make the reader feel he is missing something by not seeing an issue. But this is not the sole reason for its fashion-magazine appearance, showing a new design-idea-a-month; there are also reasons dating back to the twenties. American magazines as a whole were slow to recognize architects and architecture that were to influence design for the next fifty years. Once they did commit themselves to modern, they may have felt ashamed of their *retardataire* background, and feared new developments would go unnoticed again.

An aversion to narrow parochialism and testy conservatism has been generally characteristic of American journals ever since, and this, perhaps, is one of their strongest virtues. Thus, they pursue new design ideas that might have significance for the profession — and, of course, the actual publication of a scheme or an idea almost guarantees that it will have an influence. Related to this is the fact that architects and journals no longer have to look to Europe, but eagerly seek out America's own architectural developments.

With the same readership base for all magazines, competition is keen. The ramifications of this competitiveness are naturally shown in "scoop" psychology, in glossy presentations, in lining up magazine favorites who will promise first-rights publication, and in lack of criticism for fear of offending leading architects. Of course another deterrent to active criticism are laws of libel. English periodicals are more preoccupied with this restriction because libel laws in England are stricter: it is all right to criticize

a building so long as it is in the public interest, but to question an architect's competence is libelous. J.C. Richards, longtime editor of *Architectural Review*, notes two related problems also shared by American journals. Because so much money has been spent in the building, much is at stake in the criticism. Also, since there is an absence of routine press criticism, any kind of infrequent criticism seems to be a vicious attack. Yet, as Nikolaus Pevsner recently explained to P/A, there is probably more architectural criticism in England because a scholarly critical attitude in all creative fields is more prevalent there.

Many readers are tempted to attribute the lack of criticism in American magazines to the scarcity of architects on magazines' staffs. Yet this is found to be true of English journals too. Hugh Casson, architect-writer for *Architectural Review*, has written recently about English periodicals: "considering many architectural journalists receive training neither in architecture nor in journalism, it is a tribute to their skill and persistence that the standard achieved is so high." In 1947 *Review* stated that one of the aspects of English culture worth preserving is the "practice of dilettante journalism by expert amateurs." But in America, with its mythification of educational degrees in this age of specialization, who ever heard of the *expert amateur?*

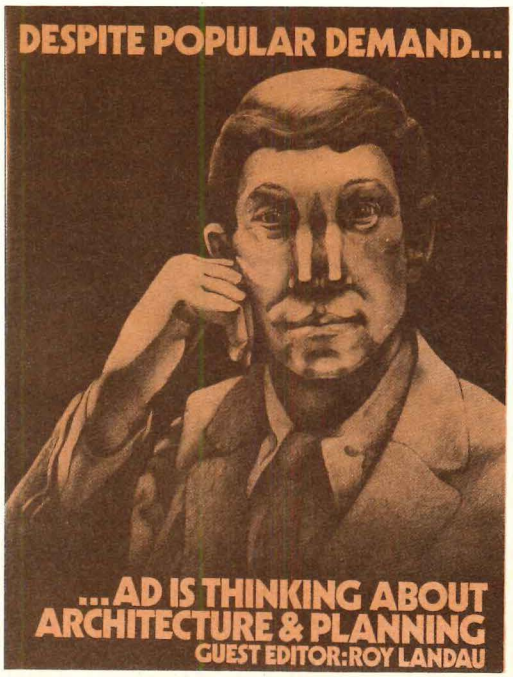
But times are changing. Even the act of criticism raises problems of definition and kind today. The term *criticism* has always had the problem of being too quickly reduced to *aesthetic criticism*, or to discussing architecture as if it were a book or a painting. According to Ada Louise Huxtable, the usual definition of architectural criticism "is now a vestigial misnomer and anomaly," since there has been "a revolution in the understanding of the nature and consequences of what is built everywhere on everyone; the manner in which construction solves or exacerbates human problems and diminishes or increases the human spirit." However, Mrs. Huxtable does defend the need for standards of creative design "that are poorly understood and that are often the thin thread of sensibility and quality on which the success or failure of socially based programs depends."

But as Christian Norberg-Schulz states in his book *Intentions in Architecture*, "Today criticism generally limits itself to the judgment of more or less arbitrarily chosen properties of the work in question." The critic must possess a complete theoretical insight. A theoretical *framework* from which a building can be described and analyzed is presented in Norberg-Schulz' book, which he describes in part as a " 'meta-system' that is a language to talk about 'architectural language.' " It is perhaps partly because of the need for familiarity with rigorous philosophical and psychological disciplines — particularly concerning the nature of perception — that this theory has not been widely applied in architectural journalism.

There is also the question of when criticism should take place. As some architects have pointed out, criticism is more valid when in the project stage so that the architect still has a chance to remedy shortcomings. Peter Collins, on the other hand, wrote in an article in the *AIA Journal* that he has gradually come to the conclusion that an architect would first have to live in an environment before he would be able to adequately assess a building in that environment, and he does not see how "a building can be assessed adequately in functional terms until many months after its occupancy." Yet this type of criticism is necessarily dependent on the presence of the physical envelope. How do you begin to adequately evaluate design of a nonphysical nature, such as when the architect invents a new program before he invents the physical solution to that program? Or, as seems to be more and more the case, the solution itself is nonphysical?

While the area of criticism as a whole is a complex problem that raises many questions, there are other areas magazines shy from. Hesitation is evinced particularly in involvement in the realm of ideas indirectly related to architecture, despite current emphasis on multidisciplinary thinking. P/A was the first American architectural magazine to devote an entire issue to nonarchitectural matters in the specific sense, in its December 1966 issue, "Toward the Third Millenium." The English publication, *Architectural Design* has in recent years geared much of its effort to this approach. Its September 1969 issue "Despite Popular Demand . . . AD is thinking about Architecture and Planning" is an outstanding example that includes articles on the linguistic theories of Noam Chomsky and the philosophy of Karl Popper.

Both *AD* and *Architectural Review* have readers outside the profession; Nikolaus Pevsner estimates that perhaps 50 percent of Review's readers are nonarchitects. Neither depends strictly on advertisers or on subscription rates for their sustenance; their publishers are able to "subsidize" them when necessary, and do so because both magazines apparently have a



prestige value for the publishing house. As a result, neither magazine is as closely linked to the practical architectural matters that American magazines concern themselves with to satisfy their readers.

Given Our Limitations — Any Suggestions?

The foregoing discussion naturally raises the question of the role and purpose of magazines now and in the future. If magazines have to accept the fact that their basic means of support, more or less, is going to depend on the product advertisers, they have to accept the fact that they will have only professionally-oriented readers. (Needless to say, it has been suggested that magazines shift their advertising base to include, for example, companies involved in pollution control. Although this possibility exists, for the present, the strongest advertising market for architectural magazines is still product advertisers.)

Regarding subject matter generally, if magazines are responsive to the issues, problems, and potential solutions affecting architects and architecture now and in the future, a range of diverse topics and perhaps a healthy inconsistency in types of issues, stances, and approaches is suggested. As in the recent past, American architectural journals have tended to "divvy up" general architectural territory to avoid competing at every level. David Travers observes that one magazine shows architecture plus technical data, another, architecture plus "urbanistic" articles, and the third, architecture plus new design ideas. He urges, instead, that magazines become more interdisciplinary and generalistic in nature instead of just talking about it. To effectively accomplish such a program, he suggests continually using guest editors who are experts in their respective fields. Emilio Ambasz, Curator of Design of the Museum of Modern Art, agrees but calls for "a constellation of polemical magazines pledged to reformation rather than information; devoted completely to exploratory, postulative, and critical thought, and specifically providing vehicles for presenting new ways of perceiving the configuration of present urban reality." Through such magazines we would "postulate images and models that would become part of an ever-changing mental landscape of willed environment and, thereby, contribute to alter out modes of beholding and acting upon the manmade milieu. Magazines of this sort may, in addition to expanding the framework of our urban aspirations, also provide a guide for designing the decisions that will have to be implemented to bring those envisioned urban goals into being."

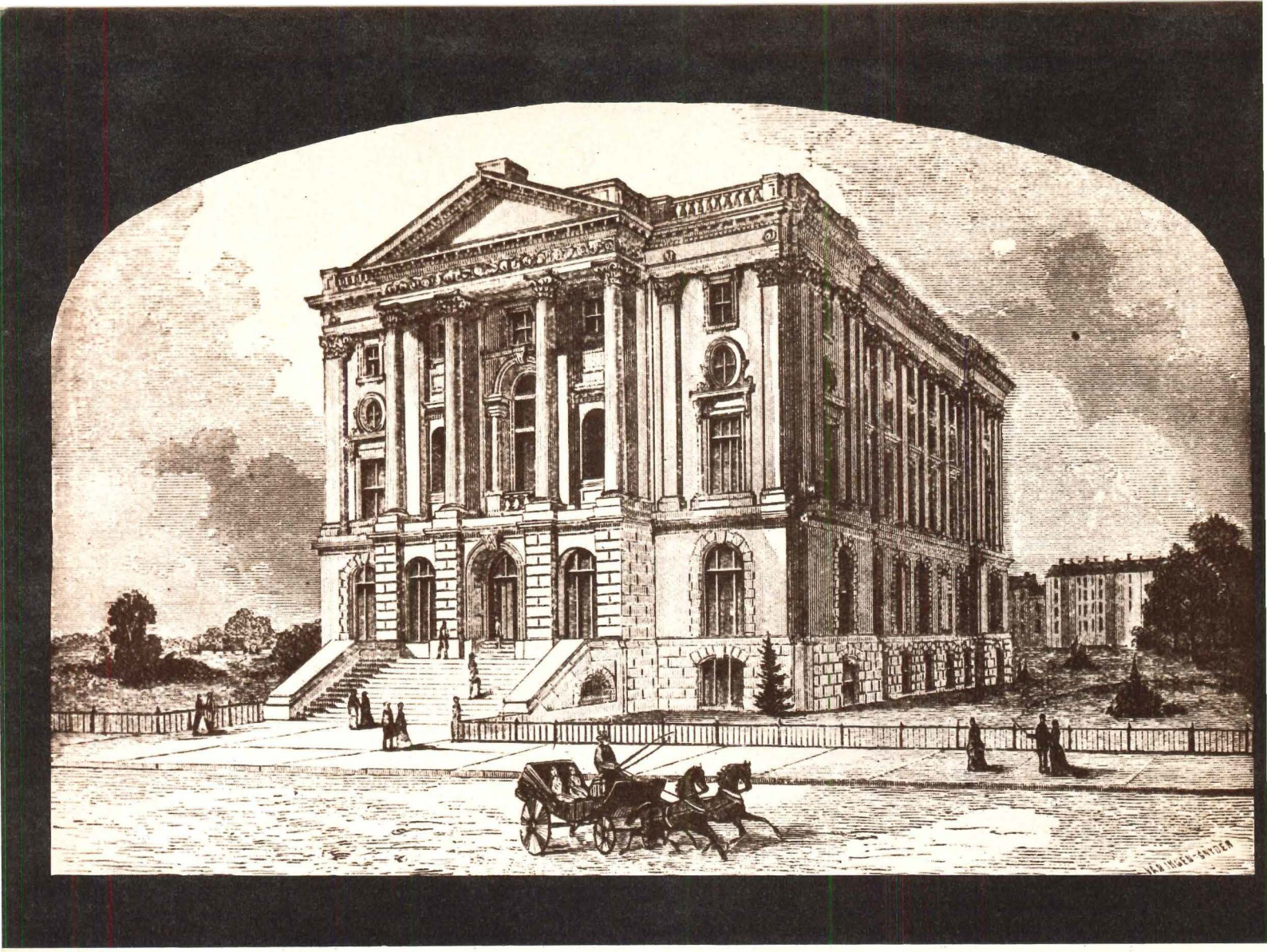
Methods of Implementation: Journalistic Techniques

If magazines are to present such a broad spectrum of content and approaches, then the journalistic treatment needs to be examined. For a long time objective journalism or straight presentation of the facts was considered the only way of getting to the truth. But in the last decade, the limitations of objective journalism have been increasingly recognized, specifically that it often results in the flat description of an action without acknowledging the possibility of a reaction.

As a result, the increased recognition of another type of objective reporting often appears: the in-depth analysis technique where the goal is to present all sides or issues through intensive and objective investigation. This method works particularly well when issues are complex and confusing; especially when the writer can see no morally compelling solution. But it still calls for a mid-fifties noninvolvment that strikes some as fatuous when the situation is more clear-cut, particularly if the journal's self-declared position might have beneficial results. Some journalists who feel committed to objectivity (or work for papers that do) have developed a subtle form of indicating their stance. This is using the old ploy of selecting certain facts (selective distortion) and the new technique of contrapuntal juxtaposition for effect. This technique is similar to current film editing methods: events, facts, statements are arranged in a pattern to reveal an implicit statement.

The subtle approach often is quite successful, depending again on the subject matter. Yet, journalism has become increasingly more personal. Creative writers are turning to this discipline, and refuse to lose their anonymity or subsume themselves to content. This particular age, one of exciting change concerned with the overthrow of old values, methods and modes of thought is attracting creative writers who want to confront reality rather than invent it. But it is not just the creative writer turning to journalism that is effecting a change in approach. The young who are leading the revolution for change demand a commitment and a stand; no longer is ambivalence seen as a virtue. As Carl Oglesby stated in his essay, *The Young Rebels*, "The troubled feeling persists that the modern era is not simply what *is* . . . but that it is also what it is *not*." In order to write about what the era is not, the journalist must often sacrifice the objectivity desirable for describing what is.

In discussing the various methods currently available to journalists, any one method is not necessarily being advocated. The type of journalistic technique a writer employs to get to the truth, however, should be a personal decision based on the subject. Too often journalists become locked into one mode — the objective one — because editorial policy views interpretive journalism with suspicion. To deal with every subject with the same journalistic technique is as limiting as the architect who prescribes the same solution for every program. The disciplines of architecture and architectural journalism differ from their sibling fields of art and creative writing by virtue of the fact that they exist primarily because they have an explicit function to fulfill or a message to convey. Yet the true creativity in these fields comes from solving their respective and often difficult problems in the imaginative and unique approaches peculiar to the special program. — **Suzanne Stephens**



The Beaux-Arts style in America (MIT 1868).

Beaux-Arts to

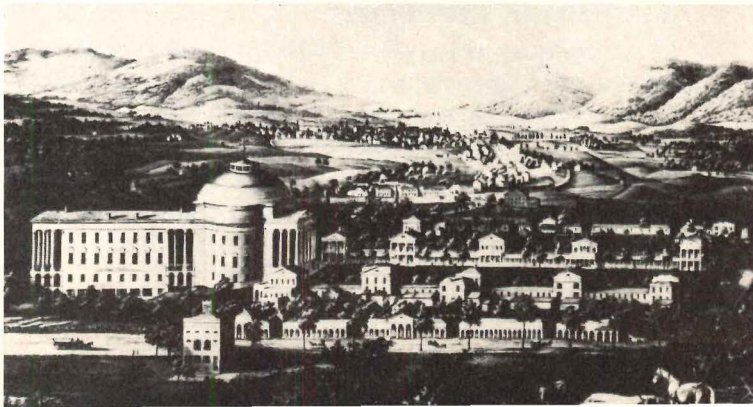
From exquisite renderings of fantasy problems, to the current student revolution and involvements with living communities, the architectural student defines a new moral creativity.

American architectural education was dominated by the methods of the Ecole des Beaux-Arts in Paris when *Pencil Points*, P/A's predecessor, was first published in 1920. Since then, vast social, economic, and technological changes, along with the current revolutionary mood in the schools, have brought equally vast changes to the profession and its teaching methods. Education has always been a conscious and active concern of architects, and even at its inception in 1857, several years before the first formal school of architecture opened in this country, the founders of the AIA recognized the need for a comprehensive, national committee on education.

Architectural Education in the Early Colonies

Builders of the early colonies took their inspiration from popular English builders' guides such as James Gibbs's *Book of Architecture* (1728) and Robert Morris's *Select Architecture* (1757). The buildings of the period were constructed under the guidance, in the case of more important public buildings, of architects who had received their formal training in England or France or, in some cases, under the direction of knowledgeable, gentlemen-architects.

University of Virginia.





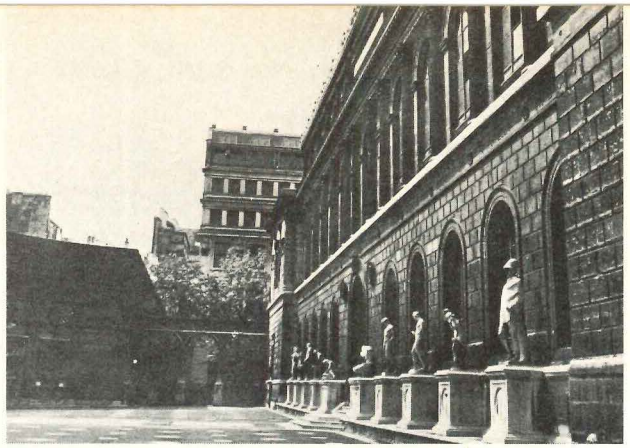
School of Art & Architecture, Yale University, destroyed by fire, 1969. Photo: Berko

Burned Arts

Since, until the 1860s, there were no formal schools of architecture in America, apprenticeship or study abroad were the principal means of gaining the necessary training. In addition, private libraries, such as that of Towne and Davis, a center of intellectual activity in New York during the Greek Revival, contained valuable storehouses of technical and stylistic information from which the architect could draw.

The Impact of the Industrial Revolution

The enormous increase in industrial production and wealth following the Civil War created the need, especially in northern cities, for an army of architects to meet the growing demand for larger commercial buildings. Since too few competent architects were available, ruthless speculators became increasingly involved in the business of building. Many buildings collapsed due to inadequate testing of materials, poor construction, and bad design since legal codes were almost nonexistent, and the science of structural engineering was still in its infancy. Alarmed and conscientious leaders in the profession were quick to recognize their responsibility to encourage more thorough education for architects, especially in the engineering sciences. It was at this time that the AIA was organized. One of its primary objectives was to raise the standards of building construction by encouraging more thorough training for those entering the profession. Because higher learning in America had traditionally been conducted in the universities, it was natural that the training of the architect should take place there too, and it became an early policy of the AIA to encourage the founding of new architecture departments. Because the most pressing need was for more thorough training in engineering, the earliest schools placed little emphasis on design, usually leaving it to the last years of study. The curriculum closely followed that of the German polytechnic schools but, by the end of the 19th Century, the methods of the Ecole des Beaux-Arts, with its concentrated emphasis on design, dominated most American schools, setting a pattern that was to last into the 1920s and beyond.



L'Ecole des Beaux-Arts, Paris.

The Ecole des Beaux-Arts

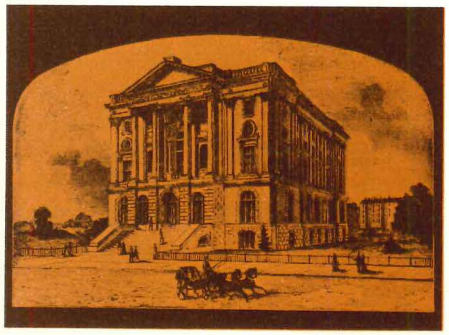
Design instruction at the Ecole was characterized by a careful study of the historical periods, especially the Italian and French Renaissance, Ancient Greek and Roman, and the late Gothic styles. By 1720 the *Grand Prix de Rome* had been instituted to provide winners with four additional, government subsidized, years of study in that architectural museum.

The Ecole was maintained by the state and charged no tuition. Admission standards were rigid but once admitted, the student entered the Second Class where instruction was divided between theoretical lectures and studio work. The latter consisted of producing meticulously rendered drawings of Classical orders and details, as well as solutions to relatively uncomplicated design problems. After about three years, he usually entered the First Class where lectures were restricted to building and architectural practice, while in the studio classes only the formal and monumental aspects of design were stressed. The most exquisite and perfectly rendered *projets* were destined to become prize winners, and students were quick to learn what pleased the judges.

The actual preparation for practicing architecture was gained through a unique ecole-atelier system whereby a student associated himself with a practicing patron who guided him and provided him a place in which to work. The ateliers were highly fraternal, and competition among them was always fierce. At the end of his study, the student was required to spend one year under the supervision of a government architect managing the construction of buildings.

The First American Schools

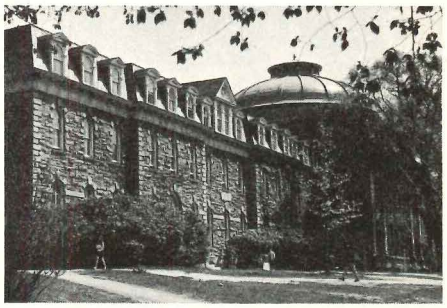
The first American to attend the Ecole des Beaux-Arts was Richard Morris Hunt who, upon returning to this country in the 1850s, established a French-style atelier in New York City. One of his students, W.R. Ware, after finishing his studies and traveling in Europe, returned to Boston and established his own atelier, but the entire atelier-apprenticeship system could not satisfy the needs of a growing nation. In 1865, Ware was asked by MIT to organize and direct the first formal school of architecture in the United States, which opened in 1868 with four students. It was natural for Ware, who had been educated in the Beaux-Arts tradition, to seek a *Grand Prix de Rome* winner, Eugène Létang, to direct the design program. Ecole trained architects, whether French or American, were actively sought by the schools, and quickly became leaders in determining educational policies.



First School of Architecture in U.S., MIT. Photo: MIT

The Beaux-Arts Institute of Design

The influence of the Ecole gained considerable support when, in 1894, a group of its American graduates established the Society of Beaux-Arts Architects, later known as the Beaux-Arts Institute of Design (henceforth BAID). Through a vigorous educational program the BAID helped to spread the Parisian taste, fought what it considered architectural vulgarities, and encouraged Americans to seek training at the Ecole. No less important were its attempts to establish more ateliers, as well as a national school based on the Ecole. Although the school was never realized, the BAID, through its student competitions, was successful in establishing the methods of Beaux-Arts design training that were to dominate American practice until the 1930s.



Sibley Hall, Cornell University.

In its first year, the BAID inaugurated its famous quarterly series of student design competitions. When the program was published, participants were locked in a room for eight hours to prepare their preliminary *esquisse-esquisse*, or sketch. The sketches were then submitted anonymously to a jury of architects, and those whose sketches were accepted were allowed to continue the program and to finish the design that would be presented again for final judgment. Winning *projets* were widely publicized, often appearing in the pages of *Pencil Points*.

There were three categories of programs. The *Analytique* was a simple problem for beginning students based exclusively on the Classical orders. Class B *Projets* comprised a series of small building types that were not restricted to the Classical orders, and Class A *Projets* included major public buildings that were to be rendered with elaborate detail and



Beaux-Arts style,
U.S. Custom House,
N.Y.
Photo: Bettmann Archives

great precision.

Only Class A and Class B students were eligible to compete for the prestigious Paris Prize that entitled the winner to two years' additional study, as a First Class student, at the Ecole itself. It was for this important yearly award that competiton among students, ateliers, and schools reached fever pitch. Students were first given an eight-hour sketch problem, and those passing were given a second, more detailed, twenty-four hour sketch problem. From the last program, five were chosen to compete for the Paris Prize. Upon presentation of the program they were again confined for eight hours, in solitude, to prepare a preliminary sketch, and after it was approved they were allowed three months to complete the *projet*. Ultimately, the competitions became so important that the reputations of schools and ateliers rested with the number of Paris Prize winners they could boast.

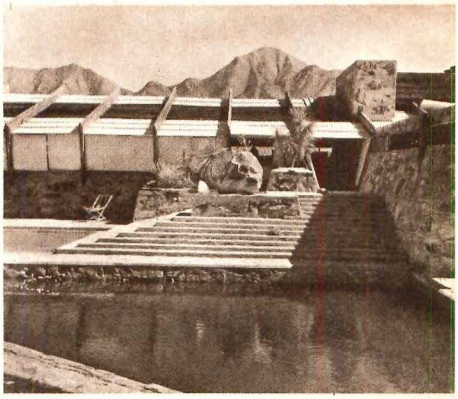
The BAID competitions inherently possessed some of the same disadvantages that were found at the Ecole des Beaux-Arts, since students, jury, and faculty alike became more interested in beautiful salon presentations, delicately washed in pastels and meticulously executed, than in viable solutions to real problems.

The Modern Movement

With the development of the skyscraper in the 1880s, the need grew for education in the principles of steel and reinforced concrete construction methods for the design of a building type that was to prove the most difficult of all to dress successfully in classical styles.

Even though courses in structural design were being offered, and the design of some buildings was being simplified, American schools remained immersed in eclecticism. But impatience with classical training grew as the innovations of Wright, Neutra, and Eliel Saarinen came to the schools' attention. News of European innovations, particularly after World War I, exerted an even greater influence. In America it was not teachers but books, especially such works as Henry Russell Hitchcock's *The International Style* (1932), *Modern Architecture* (1929), and Francis Yerbury's *Modern European Buildings* (1928), in addition to translations of Le Corbusier, Taut, and Gropius that turned the tide of architectural education after 1925. The new image was strikingly conveyed in such foreign magazines as *Bau und Wohnung*, which featured the work of the Bauhaus, and in domestic magazines such as *Pencil Points* (Jan., 1930) that early recognized the importance of new work in Europe and in America.

The first modern designs appeared in the BAID competitions in 1926, and by 1931 virtually all student work expressed the new idiom. It remained poorly understood, however, since students, influenced by their eclectic training, tended to treat the style as they would have any newly popularized historical mode, often simply adding "modern" façades to traditionally planned buildings. But even though acceptance of the new movement began as another stylistic change, it resulted eventually in a complete break with the past. The confusion in the schools after the breakdown of eclecticism, which coincided with the Depression, forced a new examination of educational objectives and procedures, and as most schools endeavored to evolve programs to meet contemporary needs, architectural education began to evidence greater variety and openness.



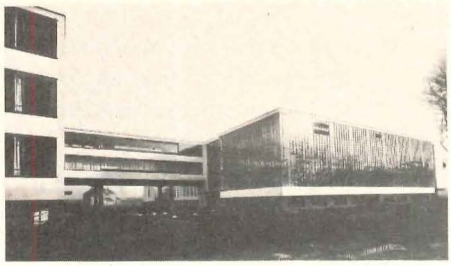
Taliesin West.

Two important events of the 1930s were to have a profound effect on American architecture. One was an exhibition at the Museum of Modern Art in 1932 that featured the work of Wright, Hood, Neutra, Howe, and Lescaze, and also recognized the importance of Gropius, Mies, and Oud. The other was the closing of the Bauhaus by the German government in 1933.

The Bauhaus

The educational importance of the Bauhaus lay in its treatment of architecture as a multidisciplinary activity dependent on teamwork and structured, through Gropius's sensitive concern, so that each student might develop his own solutions to problems, rather than accept academic formulae.

In the late 1930s, many Bauhaus teachers came to America where they exerted a profound influence on architectural education and practice. Walter Gropius, perhaps the greatest teacher of modern architecture, continued the Bauhaus methods at Harvard where he was joined by Breuer. Against the opposition of a conservative and established school, Gropius revitalized the notion of architecture as a problem-solving, environment-creating, interdisci-



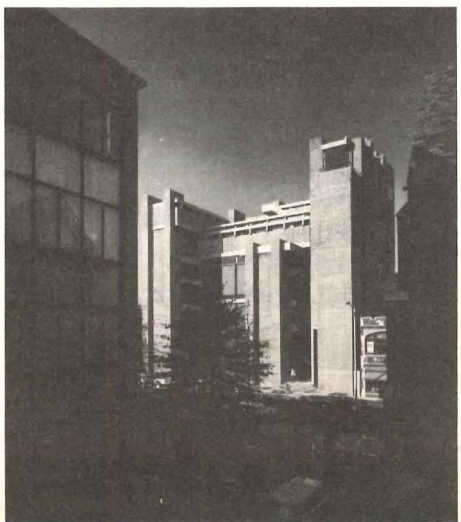
Bauhaus.
Photo: Museum of Modern Art, N.Y.

plinary activity. His belief in the value of the profession to enhance the quality of human life, while revolutionary in the 1930s, is a major focus of today's training. Laszlo Moholy-Nagy, who taught the preliminary course at the Bauhaus, founded the New Bauhaus in Chicago, now the Institute of Design, in 1937 while Mies van der Rohe, the last Director of the Bauhaus in Berlin, became established at the Armour Institute in Chicago, now Illinois Institute of Technology. Gyorgy Kepes continues to teach courses in light theory and design at MIT, and Josef Albers, a pivotal figure at Black Mountain College (based on the Bauhaus model), where he taught courses in color and design from 1933 to 1949, continues as chairman of the Design Department at Yale.

The Architect's Education Today

Architectural education since the end of World War II has encouraged team work and the consideration of actual problems that deal realistically with client, site, and technical requirements. Concurrently, many schools have begun courses in aspects of mass and industrialized housing, ranging from problems of manufacturing to broad social implications. And since the mid-sixties, programs utilizing such new techniques as computer-aided design, as well as programs related to urban planning and design, and to environmental control, have become increasingly widespread.

E.M. Risse of Rensselaer Polytechnic Institute, in his report *Observations Concerning Education of Professionals in Environmental Design* for the New York State Department of Education, discusses the need for a new integrating profession to provide information and assistance in making allocations of public, private, social, economic, and physical resources to improve the total environment. He feels it is in this area, not in the traditional disciplines, that the most intensive work is needed.



School of Art & Architecture, Yale University.
Photo: Robert Damora

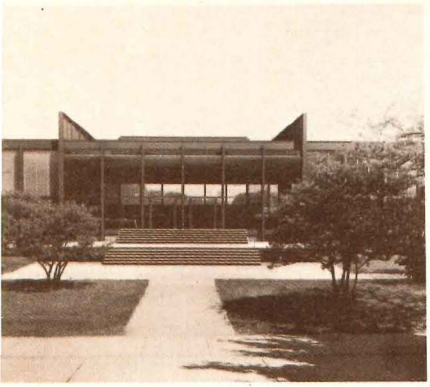
For example, his research has shown that in New York State, with a population exceeding 18 million, there are 55,000 persons concerned with the sale and transfer of land but less than 55, who by training or position, are competent to have significant impact on the future of land use. He further notes that while 50 institutions of higher learning in the United States provide a total of 106 programs in planning, the need for professionals in *public* agencies alone cannot be met by the present programs that only graduated 1045 professionals in 1969 — the State Office of Planning Coordination estimates that 4700 professionals would be needed for New York alone. While recognizing the importance and value of nonacademically trained professionals, he notes that the manpower need for planning would still far exceed the resources.

A first step to the solution, he feels, would be a comprehensive review of what individual professions should be expected to do. Further steps would be to examine continuing education, easy entrance, exit, and reentrance into education and on-the-job training programs; to investigate means of encouraging "action-oriented" people into environmental disciplines; to investigate the possibility of creating county-agent systems of *urban* advisors; and to encourage state education departments to assume the important role of clearing houses for information on urban studies.

No less important, Risse feels, would be to review the way present professional talent is used. He believes that a 50 to 100 percent increase in output could be obtained by providing the professionals with adequate and critically needed supporting staff.

To supplement an extensive earlier report (P/A, March, 1967) on architectural education, and to obtain a first-hand view of training today and of some emerging trends, P/A recently questioned heads of architecture departments throughout the country. In teaching methodology, most educators see a definite movement away from the traditional transferring-of-fact system of education toward new methods of instruction that make use of team-teaching and of systems approaches in integrating design, structures, and materials. Concurrently, there is a growing tendency to place greater emphasis on process than on solution. Instead of clear-cut, textbook problems, most teachers would encourage student involvement in real problems and their definition. In discussing changes in architectural education since P/A first began publication, Dean James W. Elmore of the College of Architecture at Arizona State University noted that "probably the most significant change is that the function of a school of architecture was much clearer fifty years ago." Dean William Wheaton of the College of Environmental Design at Berkeley said "Fifty years ago, the aim of education was to bring into the schools the apprentice system by which the accumulated knowledge and wisdom of a practitioner could be transmitted to a young man. Today, architectural education is moving steadily in

the direction of assembling knowledge from a variety of disciplines and offering it in condensed, summarized, and structured form to students." Commenting on the emergence of team teaching, Acting Dean Charles E. Croom of the School of Architecture



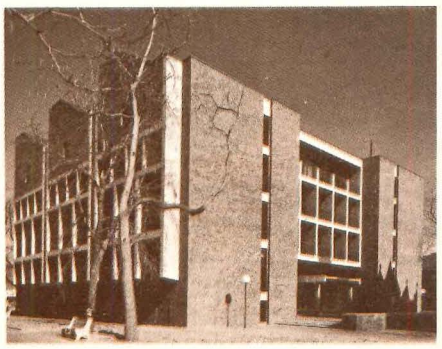
Crown Hall, Illinois Institute of Technology.

at Syracuse University found that "the 'studio master' is mainly effective in the first and second years when we are attempting to find out potentials. Team teaching has its drawbacks in the diffusion of authority, but maybe this makes it a real-life experience."

Over the past several years, student demands, and in some cases revolutions, have exerted a profound effect on architectural curriculum. Most of the teachers P/A questioned view greater student participation in curriculum planning as an important and necessary activity in revitalizing educational methods. While they do not think students should be allowed to dictate, most hear student suggestions eagerly, although some remarked that it is often difficult to agree on goals and that students are frequently unclear about what they want. Robert E. McConnell, head of Art and Architecture at the University of Idaho, noted that "We did not have to wait until they were forced to 'demand' a greater voice; we asked them to participate, as a matter of common sense. They have voiced their concerns in many areas and, in each case, their views have been carefully considered and a number of changes that were immediately possible have been made. Others are being studied and will probably result in change to some degree. I have found that if the students are regularly involved in the decision process, the results are more likely to be valid." Educators realize that student involvement in course planning must not be merely token and that value can result from it only if there is a genuine concern on the part of teachers as well as students. At Cornell, according to O. M. Ungers, chairman of the Architecture Department, the faculty has established a structure committee in which students have equal votes.

Almost all schools have initiated, either on their own or in response to student interest, community-involvement, advocacy-planning projects, often for academic credit. Speaking as one who has been closely involved in community planning projects, Bertram Berenson, chairman of the Division of Architecture at Hampton Institute, reported "an ongoing relationship with community agencies involved in renewal and redevelopment, along with those persons directly affected by environmental change. . . . We have a community design-center in the real sense and it is composed of the Division of Architecture." With insight gained through several years of experience, he reported that he tires of "social rhetoric without the ability to produce results. A gesture on the part of any school that frustrates or hampers positive change in the urban condition is fraudulent and denigrating for both students and our constituency." At the University of Minnesota, according to Ralph Rapson, "some forty-five of our students, in four different groups, are out working within the community on real problems within the Model Cities, the community rehabilitation programs, and the University Living-Learning program." While these programs vary widely in scope and intensity, one of the most wide-ranging programs is the one at MIT where, according to Dean Lawrence B. Anderson of the School of Architecture and Planning, students' involvement is not restricted to the local community but ranges as far afield as Alaska and Brazil.

In an effort to widen the students' horizon, all schools, to varying degrees, have encouraged faculty from other disciplines to lecture within the architecture division. At some, lecturers are invited by student request, while others plan such programs



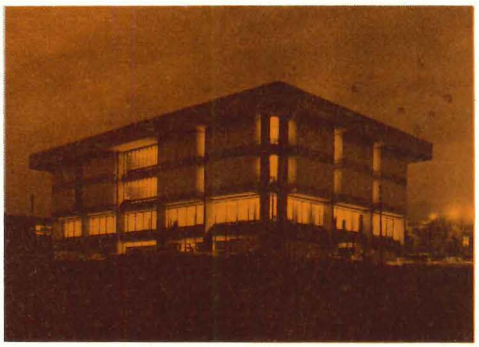
Fine Arts Building, University of Pennsylvania.

regularly. Faculty from other disciplines are often invited to act as jurors on design projects and to participate in problem-solving sequences. Some architecture departments, including those at smaller schools, draw permanent faculty members from such diverse areas as sociology, psychology, economics, law, political science, fine arts, industrial design, and business administration; and the College of Environmental Design at Berkeley even has its own faculty logician! Many schools now require courses outside of the architecture school, since architecture is seen increasingly as a total planning process.

Educators now recognize that it is a mistake to attempt to train all students as designers, since many might make greater contributions to the profession in other capacities for which little or no training has yet been offered. Dean Elmore reflects this changing attitude when he defines the educator's responsibility as determining "what kinds of philosophies and technologies will be required for providing the professional expertise for shaping the manmade environ-

ment and to devise programs that will attract students to these pursuits and stimulate them in their studies. This recognizes that there is a wide spectrum of environmental design 'know-how,' that the design of a building is just one part of that spectrum and that the appropriate function of a professional school is to provide or to participate in the provision of educational preparation for all the specializations related to the shaping of the visual world."

The need for training more architects is almost universally accepted, although some educators look instead for better training without increasing numbers. Dean Wheaton has reported that studies by the Coordinating Council of Higher Education in California indicate a positive need for five more schools of architecture and allied disciplines. "Only one more is now under way (UCLA)," he said, "and programing for two more is in the most tentative stages and will be much too late." Most schools that have not already done so plan either to lengthen their curriculum or to increase enrollment, or both. Eleven schools are now offering the doctorate degree in one

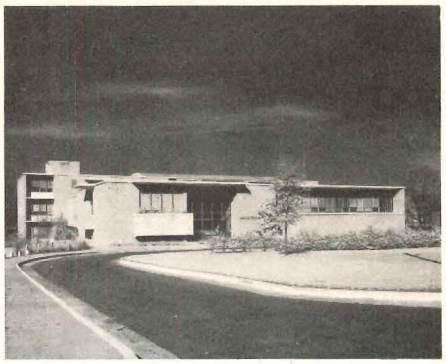


Cowgill Hall, Virginia Polytechnic Institute.

or more areas including architecture, urban and city planning, history of architecture, and building science. While total enrollment is increasing generally, only two new schools have been accredited by the NAAB since 1966. There are now 63 accredited schools, representing an increase of 17 schools since 1955, and 35 schools since 1945 when there were only 28. The need to provide graduates and practitioners with some form of continuing education (other than graduate work) is frequently mentioned. Continuing education might especially occur at two points: during the period between graduation and registration exams, and at some time later during the architect's career. Of the schools P/A questioned, only 18 percent offer regular educational programs to alumni and local architects, some in the form of refresher courses, some in the form of short courses sponsored with the local AIA chapter. Forty-two percent offer no program at all but 18 percent are considering initiating extra-professional courses, and 22 percent reported that they have either tried, discontinued, or never started such a program because of lack of interest on the part of architects in the local community.

The Future

In discussing the future role of the architect, Robert

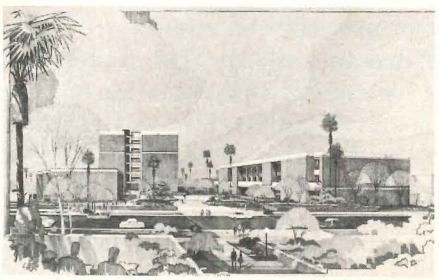


School of Architecture, Georgia Institute of Technology.

E. McConnell believes that "for the foreseeable future, there will still be this fellow called 'architect,' although we may find a new name for him. I believe that he will continue to function as a Design Synthesizer, but I also feel that we are approaching a time when he will also be free to be the Entrepreneur-Innovator of environment. I believe that we are becoming restless with the traditional role of subordinating ourselves to 'clients' and are beginning to realize that changes in environment could be more rapid if we were the initiators of the task."

The future of architectural education must remain an open question. In fact, educators agree that any attempt to define what it might or should become would be unwise, and that the curriculum should remain as flexible and receptive to changing needs as possible. William R. Jenkins, acting dean of the College of Architecture at the University of Houston, feels that "there is a dual planning responsibility: to provide for the immediate needs of society and to create an environment which encourages experience and alternatives for students not inclined to follow the traditional and classical practicing architect role."

The new schools of architecture that are developing, as well as some of the established ones, are being heavily influenced by the 1967 "Princeton Report" (*A Study of Education for Environmental Design* by Robert L. Geddes and Bernard F. Spring). Crucial to the report in its definition of the environmental design tasks that should form the basis of educational policy is its understanding of how "the changing of any part of our physical environment



Art & Architecture Complex, Arizona State University.

affects and interacts with every other aspect of that environment [so] that no decision about physical design is wholly independent." In structuring a program of total environmental design, the authors have formulated 216 separate activities that as a program provide "a process for planning and evaluating the unprecedented diversity of new programs that are



Taylor Hall, Kent State University. Copyright: Valley Daily News, Tarentum, Pa. Photo: John Filo

needed if we are to be able to develop the teams of well-educated individuals who can work together wisely and effectively to design a more humane environment."

The End of the School of Architecture?

In facing the challenge to participate in the creation of a better human environment, Dean Buchard of the College of Architecture at Virginia Polytechnic Institute sees an entirely new role emerging for the university. He believes that students and faculty from many disciplines must cooperate in the structuring of a model for environmental development design procedures, and that fruitful cooperation among the many disciplines may not be as difficult as was once imagined when it is recognized that common systemic principles are found in all disciplines — those as diverse as physics and psychology, economics and ecology — that make them susceptible to integration. It is the job of the university as a whole, he thinks, and not only of the architecture division, to provide the model for interdisciplinary interaction and research that would lead to new environment-oriented, multi-disciplinary curricula that could in turn provide the framework for an environment more worthy of man.

But, Dean Buchard notes, "the larger purpose is *the next horizon* — an intellectual structure for environmental and urban studies — a way for the university to express the role of knowledge and its transfer in the building of a civilization. Paradoxically, if this should come about, it could mean the end of the School of Architecture as it now exists in the university context and require new alignments of faculties according to function and mission rather than, so distinctly, by discipline or profession. Possibly, this may not prove to be so. But if indeed it did, what more could we ask in exchange for our schools. It could be the beginning of hope for the human family." — **David A. Morton**

Revolutionary Scenario for an Architect's Education



By Michael Brill

Michael Brill *is Chairman of the Department of Architecture and Urban Systems, School of Architecture and Environmental Design, State University of New York at Buffalo; and Program Director of BOSTI (The Buffalo Organization for Social and Technological Innovation). These observations were born of his perceptions of student unrest on the campus and of his many lectures to professionals and students throughout the country.*

The New Student

Normally, the content and direction of an architectural education is directly responsive to the needs of the profession and is, in fact, designed by the practitioners of the profession. Because of changes in the past five years and of some extrapolation of these events to a trend, I would like to offer a probable inverse hypothesis: that architectural students today are shaping their education as never before, and that this shaping will change the nature of the profession drastically. It will also change the kinds of skills required to practice the new architecture that will, in turn, become the skills that will be taught in the new schools of architecture.

Very simply put, the bulk of architectural students have goals that are very divergent from those held by the bulk of professional practitioners. Their values — that is, what they believe to be important — skew their vision. For them architecture is seen, more and more, as a socio-physical service to the community, not as a technically enriched artform in service to a free-agent client.

Students see the prime determinants of their work in the needs of the actual user/consumers of the end product and in the needs of the society affected by the product, rather than in the wishes of the client. This has clear implications for change in "who works for whom" and "who pays whom" for such a service. We can expect to see a rise in a true advocacy architecture much like that appearing in planning now. Architects will offer schemes to users and to society as alternatives to schemes developed by other architects. The ethics of the profession will undergo strain and change.

There will be a move to isolate the young troublemakers from the profession and its reward system, but that strategy will *not* be successful for two reasons: first, like any advocate, their constituency is under no obligation to fight fair through the normal channels of problem resolution in a profession not designed to withstand such pressures; second, the reward expectations of the young professional are not the same as those of the existing body of practitioners. It would be wiser for the profession, its practitioners, and its institutions to seek a détente with this emerging force and aid it to grow in responsibility and knowledge. This will be difficult, for it will be seen as an attempt to "co-opt" the new practitioner and will be resisted.

If students are now shaping the future by focusing on the goals of the profession, then any change in goals will have far-reaching effects on: (1) the *skills* of architects, (2) the *resources* (financial, natural, and material) we employ, (3) the *institutions* that govern the organization and applications of skills and resources, (4) the *sets of rules*, both formal and informal, that control the mobilization and interaction of skills, resources and institutions.

The New Practice

Some of the trends in thought and their implications for new skills, resources, institutions, and sets of rules predict an amplified technology for the new practice of architecture. At first, the traditional skills will be seen as not important, but this attitude will change as technical problems go unresolved and the new clients grow wary of technical incompetence. A new emphasis on the traditional technical skills will emerge, but those skills will be seen as not sufficient to do the job.

The thinking goes like this: the world is increasingly thought of as a system — a complex one, but a system nevertheless. World subcomponents, be they ecosystems or neighborhoods, are, therefore, also conceived as systems. Buildings and building complexes are viewed and designed as systems. The implication of this systems-think view forces a broadening of scope and (because we have a limited capacity to absorb information) a sharing of responsibility.

If we are to design complex systems, it will be a



team activity that will alter the way skills are organized. These teams will cross disciplinary lines to organize themselves in a number of ways (only one of which has the architect as head) to accommodate changes in leadership as project emphasis shifts. It is possible that the shift of emphasis from product to process may invest the process itself, in a cybernetic mode, with the leadership role.

These new skill requirements could break down the homogeneity of architectural curricula and cause schools to develop along different lines, allowing students an educational choice based on different content and emphasis between schools.

With the growth of heterogeneity in curricula, goal divergence between student and practitioner, an increasingly militant student body, and an increasingly acquiescent school administration, we can foresee the erosion of professionally generated standards in the schools to the point where the profession can no longer look to the schools for preprofessional certification. That responsibility will devolve entirely on the profession itself in order to maintain its public trust to protect the health, safety, and welfare of society. The profession may have to set up new cram schools for itself, external to the schools of architecture, to assure that a certain minimum body of knowledge and competence exists.

The New Technical Skills

Because of the goal shift to problems both more complex and man-centered, new technical skills will be sought. Research will increasingly be seen as the key to unlock presently unavailable knowledge and skills, and as the proper content of an education. Among topics that will be explored are: (1) *systems-analysis* as a key intellectual technology used to define and unravel difficult problems, (2) use of *computers* not for "number-crunching," but for approaching problems previously thought to be unapproachable, (3) development of formal *gaming* techniques to play out and describe complex interactions, expectations, and goals of various participants affected by the building process, (4) use of *sensitivity-training* as a tool to enable us to be more sensitive to the needs of others in order to be more productive in both team work and in power negotiations (As a tool to help cross the culture communication barrier, this will be especially valuable if advocacy is to flourish.), (5) new design *methodologies* that will be developed because of the change in the nature of the client, (6) new emphasis on *management skills* that will be sought with the increase in trends towards industrialization and use of building systems (PERT and CPM methods of project management will become commonplace, especially where resources are seen as both precious and scarce, as in advocate work.), (7) use of the *performance concept* in analyzing delivery systems for housing and community services (If housing, schools, etc., are seen as services, not products of the building industry, a different scope of concern and thrust of effort is possible. The interactions between buildings and builders, law, finance, political process, and social services then become critical determinants and therefore opportunities, not constraints, in the building process.), (8) use of *feedback* in the building process, adaptable environments, measurement techniques for socio-technical systems, etc.

These technical skills are directly responsive to a changed goal structure. Today, the quality and goals of education are a primary determinant in the development of changes in the profession, and therefore of architectural technology.

The Challenge

There is another powerful challenge to the profession that will wreak enormous changes: the need simply to build more than ever before. Many studies show that we cannot do the job with the building industry as presently constituted, and that far-reaching and fundamental shifts are required to do the job at all.

We can expect some peculiar alliances. The young practitioner will consort more and more with manufacturers and systems builders, working with them and for them in order to build the volume required to meet the needs of society. We can expect the alliances generated by industrialization to be powerful ones, because they will tend to unite government, a large segment of society, heavy industry, and many outspoken architects and planners. Such alliances will strain the conflict-of-interest ethics, and through stress, change them.

To some degree, these changes are happening already. This discussion attempts to link observations made in the schools, the profession, the industry, and society at large into some cohesive pattern and to point out the revolutionary implications of this pattern. The profession of architecture is destined to be fundamentally altered in the next fifteen years. There are already signs of the traditional defense posture being adopted by many professionals (i.e., the old ways are the best ways). Let us instead try to understand, select, and order the forces acting on the profession so that we may intelligently adapt to the demands of the new clients and of the largest building challenge ever.

Five Decades of Interior Design

From the Classes to the Masses

In the last half-century, the time lag that operates during the spread of ideas geographically and from innovator to mass consumer has decreased markedly. Consequently, each new idea and invention is transmitted in an ever briefer pattern of cyclic delays. One such pattern is revealed in the gap that separates Mies's first curtain-wall projects of 1919 from the construction of the first building to use his principles in 1953 (New York's Lever House), to their ultimate misuse in mass-produced systems of the 1960s. But these were far shorter time lags than the century that intervened in the transfer of Renaissance design from Italy to England.

The past fifty years of interior design in this country, influenced as they have been by the explosion of mass communications, telescope even more the time-lapse continuum of avant-garde invention and popular acceptance. Whereas decades passed before the avant-garde designs of the twenties reached wholesale furniture outlets, it now takes a mere few months. With so short a lapse, the notion of an avant-garde becomes distorted and absorbed in a tradition of the new that values change for change's sake alone. High art and low art begin to merge and, in their confluence, the latter receives new value. For people of advanced taste, the design monuments of this century — including the furniture of Mies, Corbu, Eames, and Saarinen — present little challenge. Far more difficult are the popular artifacts that characterize each decade with a particularity that escapes the "eternal" work of art. In the pages that follow, the salons of high fashion and the living rooms of everybody else present a contrast that bridges the class gap in time.

THE GREAT COLLECTORS: ART DECO, BORAX, AND MAPLE

As the decade opened in which P/A was founded, the great antiques' collectors were amassing treasures from the cathedrals, cloisters, and country houses of Europe, and from the newly rediscovered colonial houses of America. Stained glass panels and sculptured columns, Renaissance chests and oriental carpets, all were collected with piratical greed. Interiors were rich with carved oak and ivories, cut velvet and tooled leather, Italian brocade and French marquetry — as well as with sunshine, flowers, and chintz.

Architects as well as decorators joined in the search to find objects for the clubs, residences, and chapels of clients striving to create an American myth of tradition. Funding was abundant; clients were free-spending; design factories were facile and efficient.

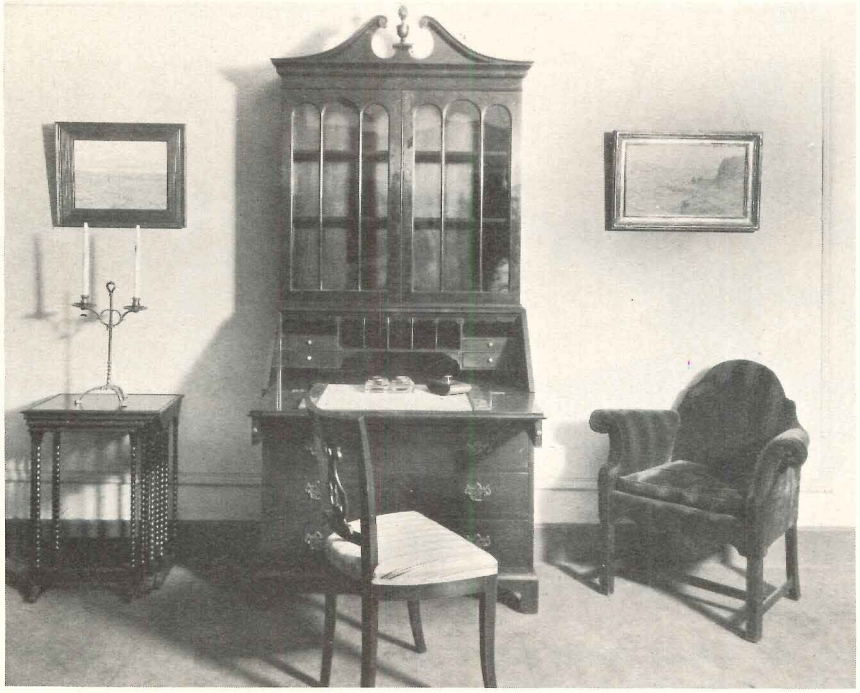
For another generation's outlook, a more forward image was offered by disciples of the Bauhaus-like Wiener Werkstaette including Paul Frankl, Eli Jacques Kahn, and Josef Urban. Soon France was to garner this glory through its 1925 International Exposition of Decorative Arts, which gave the name to this new style — Art Deco. The cycle had swung around again: the machine waxed and handcrafts waned. But the best of European avant-garde creation remained little known in this decade.

For buyers on the installment plan, Grand Rapids and the South produced pastiches of period furniture, which came to be known as "Borax" — perhaps because of the premiums from the cleanser of that name. In this way, mass-produced furniture in the Revival styles continued the 19th-Century tradition.

20's



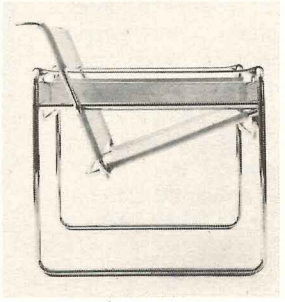
Dark woods and a variety of antiques marked a still fashionable revivalism. Photo: Brown Brothers.



The average middle-classman made do with reproductions. Photo: Brown Brothers.



Breuer's Cesca Chair, 1928.
Courtesy, Knoll Associates.



Breuer's Wassily Chair, 1925.
Courtesy, Knoll Associates.

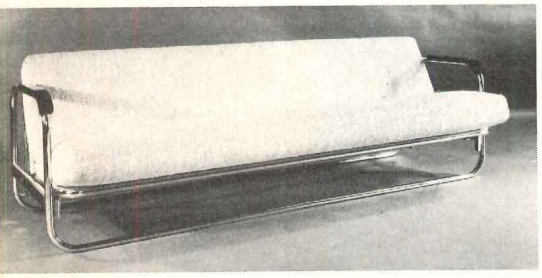


Le Corbusier's chaise lounge, 1927.
Courtesy, Museum of Modern Art. Gift of Thonet Freres, N.Y.

30's



Curves, chrome, and tubular steel — high-fashion cliches caught in a 1932 movie set.
Courtesy, New York Public Library.



Aalto's chrome-framed couch bed, 1930.
Courtesy, Museum of Modern Art.



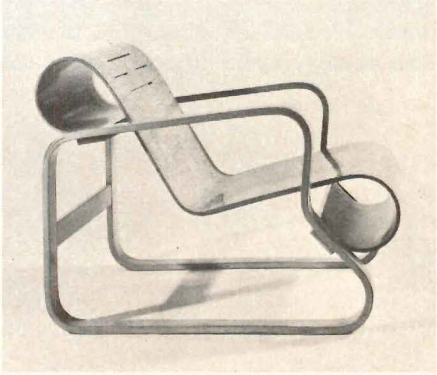
"Moderne" was the compromise with the new vision by the bourgeoisie.
Photo: Brown Brothers.

ROSE BEIGE AND BLUE MIRROR

Following the crash of 1929, design received little attention until the Chicago World's Fair of 1933 inaugurated the Streamlined Style of Industrial Design. The catalyst in this conversion was a combination of direct modern methods with a look reminiscent of provincial handcraft — "Swedish Modern." Still, Grand Rapids continued to produce "Borax" and the "Early American Maple" that was really "Early Nondescript." The battle between the "cold" machine and the "warm" handcraft raged on. In planning, the "open plan" so brilliantly demonstrated by the Barcelona Pavilion, began to be a goal.

During the Great Depression, the design world turned inward to behind-the-creative-scenes activity that continued to support the field — and to Federal Arts projects. The founding of professional interior design societies was sparked in 1931 by the American Institute of Decorators (now the American Institute of Interior Designers). New professional magazines appeared to improve communication in the field: in 1932 **Interior Design** magazine was founded and in 1934 the predecessor of **Interiors** magazine — **The Upholsterer** — became **The Interior Decorator.** The development showed that the model set by The Great Collectors was gradually shifting to a broader base of the population. Doubtless the most influential of these new organizations was the Museum of Modern Art, which opened in 1931. Its exhibitions of furnishings, especially the series called "Useful Objects," which began in 1938, was to influence both the design world and the public for the next forty years.

More plastics, glass, and stainless steel found their ways into interiors. Better asphalt tiles and acoustical tiles were produced. And, as a poor stepchild of the Great Depression, knotty pine became the wall surfacing that bespoke the first years of the decade.

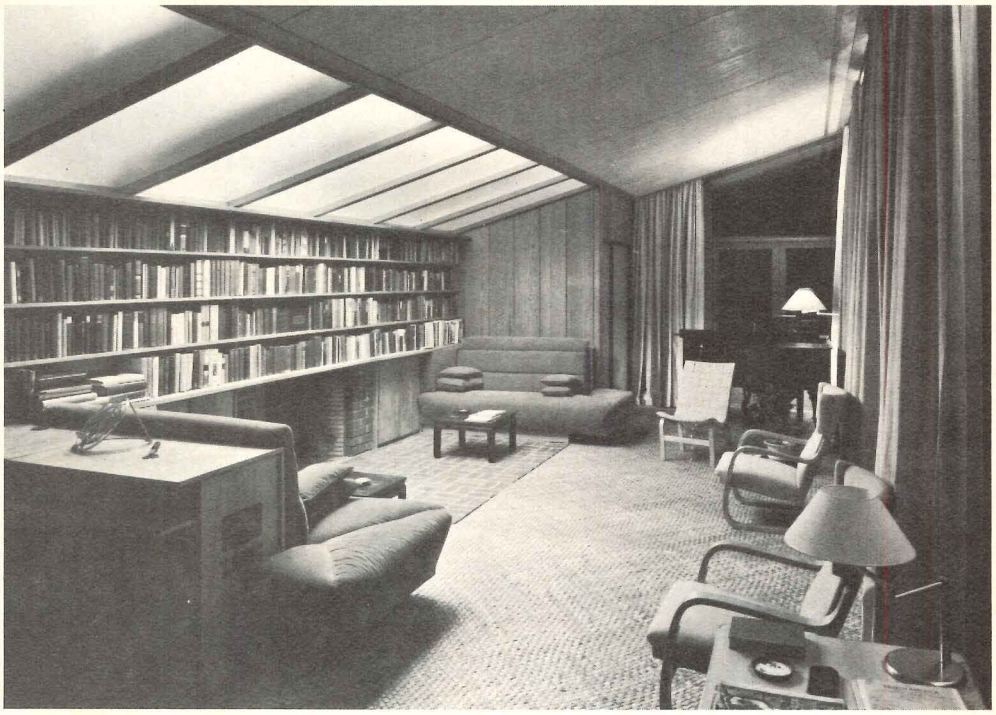


Aalto's lounge chair, c. 1934.
Courtesy, Museum of Modern Art.

40's

NATURAL BURLAP AND CUT-LEAF PHILODENDRON

The lack of resources during World War II coincided with the expanding influence of Wright's theories on "The Nature of Materials." Necessity thus brought a rash of rough textures that had not been considered "tasteful" before. Natural burlap and canvas, sisal mats and webbed furniture were among the common materials adapted to uncommon uses. As America entered the war, however, there was already promise of what was to follow. The Museum of Modern Art's 1941 "Organic Design Competition" premiated a foam rubber-padded, molded plastic chair of sinuous form designed by Charles Eames and Eero Saarinen. That exhibition was to galvanize two furniture firms into visionary activity that assured them leadership for the next decade — Knoll Associates and Herman Miller Inc. In 1946 Eames produced the first molded plywood chair, which had been developed from experiments in making splints for the Navy medical corps. Herman Miller Inc. was to become known for its technological innovations as the industry's unofficial design laboratory. In 1947 Hans Knoll and Florence Shust Knoll established the firm that is now Knoll International and soon became identified with the most elegant Miesian furniture and interiors in the country. Then, in 1949, another continental furniture invasion swept our shores. Spearheaded by the designs of the Dane, Finn Juhl, Scandinavian furniture, continuing in the Arts & Crafts tradition, attracted architects across America. Aalto, Mathsson, and Wegner became bywords of the nearly lost craftsmanship. Sinuous forms, ostensibly derived from organic growth in natural woods, were webbed simply and "purely" with tape, raffia, or caning. So, as the decade closed, "Danish Modern" was sweeping the country as "Swedish Modern" had done in the thirties.



Harwell Hamilton Harris, Havens House, 1940. A fine example of the interest in natural textures and craftsmanship during a decade of "organic" design. Photo: Roger Sturtevant.



The Rogan family in the living room of their defense home in Erie, Pa., 1942. The question of style is not raised on $42.50 per week. Courtesy, New York Public Library.

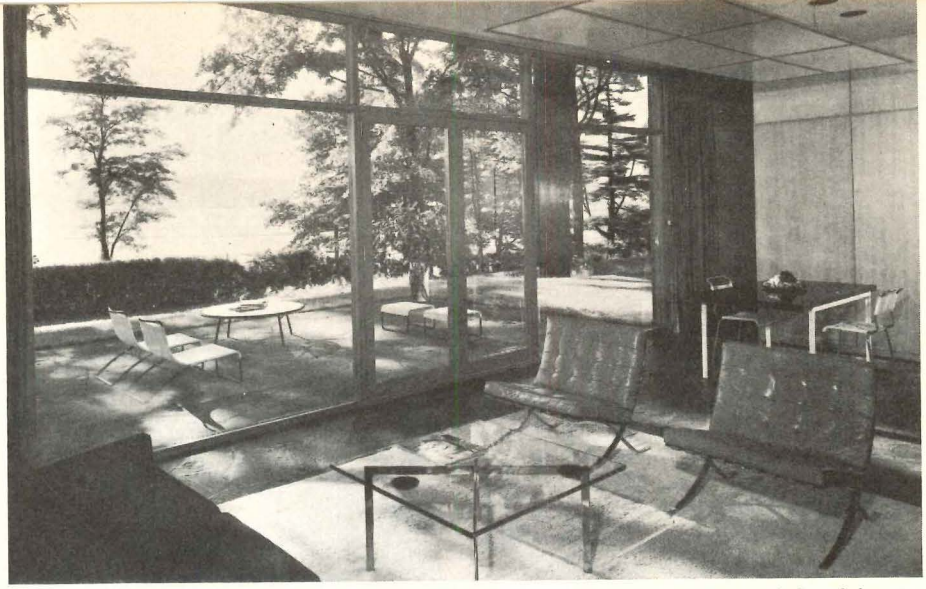




Eames's side chair, 1946. (Far left)
Courtesy, Museum of Modern Art, Gift of Herman Miller, Inc.

Prototype of Saarinen's "Womb Chair," winner of the 1940 Organic Design Competition. (Left)
Courtesy, Knoll Associates.

50's



Philip Johnson's Oneto House, 1951. Good taste in this decade was defined by an increasingly spare elegance. Photo: Ezra Stoller.



The Eisenhower years encouraged the blandest modernism, with the casual coziness of poverty removed. Photo: Brown Brothers.

WHITE PLASTER, BEIGE VELVET AND TRAVERTINE

When the business boom that followed America's recovery from World War II caused an office building boom in major cities, a group of urban interior designers seized this marketing opportunity and applied themselves almost exclusively to the area of office design. They proclaimed a new wing of the profession under the name "space planners," although planning spaces had always been a major concern of architects and residential decorators also. Industry and business learned that good design was good public relations. The furniture industry also began to receive the filtered effects of the modern movement — the idiom of architects — and more modern furniture began to be produced. To help make these manufacturers known to architects more quickly, P/A initiated its "Interior Design Data" series in 1952 — the only regular feature on interior design in the architecture press of this country. Thus, the history was more of mutual need and interdependence than the version that architects only then began "to take more and more interest in interior design."

From 1950 to 1955 the Museum of Modern Art mounted a series of annual "Good Design Exhibitions" directed by Edgar Kaufmann Jr. that showed how meticulous discrimination could fill every interior with clean and sparkling machine beauty, readily available in the market place. The pristine, purgative Miesian aesthetic formed the mainstream of the decade. Then, midway in the 1950s, Bauhaus principles became enriched by the sensuous colors of Abstract Expressionism. In fabrics, the vibrant designs of Dorothy Liebes, Alexander Girard, and Jack Lenor Larson made palatable to more people the spare designs derived from Miesian principles. Therefore, in 1958, when Saarinen's expressionistic TWA Terminal was well underway and when the Museum of Contemporary Crafts mounted an exhibition of Louis Comfort Tiffany glass, the design world was prepared to accept whiplash curves and sensuous colors as a new direction.

As the decade came to a close, the purity of the International Miesian style reached its final refinement as The Minimal Style, which developed a sparse, elemental look, a museumlike placement of objects in space, and a visual emphasis (if not yet a total concentration) on the functional needs of people.

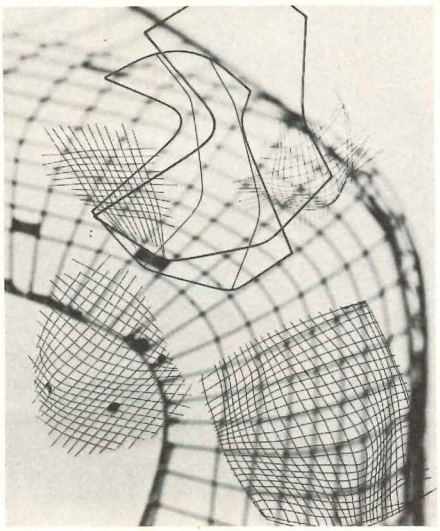


Photo essay by Herbert Matter on Harry Bertoia's wire chair. Courtesy, Knoll Associates.



Eames' lounge chair and ottoman.
Courtesy Herman Miller, Inc.

60's



Superscale and supergraphics relaxed tensions in a quirky decade. Doug Michaels New Haven apartment, 1967. Photo: John T. Hill.



The latest styles become instantly available to a mass market. Courtesy Macy's, New York.

THE SILVER-STREAKED RACE FOR SPACE

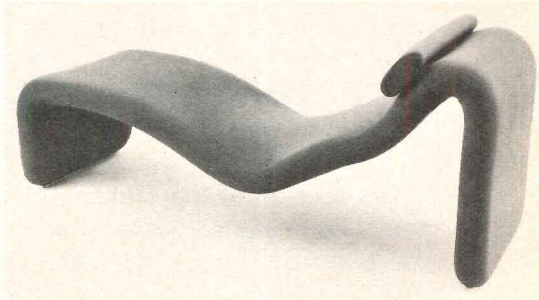
In the early 1960s, expansion was in the air throughout the interior design field — expansion of practice, expansion in the use of materials, expansion that was soon to lead to revolution. The Minimal Style was challenged by a counter movement, elaborately ornamented and decidedly un-Minimal. This design reaction became a revolution that P/A dubbed "Supermannerism." A new breed of architect and interior designer rebelled **against** the uptight formality of the past, and worked **for** "involvement." Social and political issues captured their concern — areas unrelated to formal or even nonformal design. Avant-garde, architect-interior designers showed greater interest in furniture systems that involve the user and are adaptable to the spatial requirements of the environment.

Formally, this rebellious avant-garde offered a wider range of visual experience as candidates for our design vocabulary. It included areas previously considered undesigned and unworthy of designers' attention. Included, once again, were historical traditions such as decoration, applied pattern, and ornament. It included, too, the influence of our commercial and roadside environments. Among its special techniques was the use of permissiveness and chaos; whimsey and humor; synthetic and commercial allusions; ambiguity and invisibility; superscale, supergraphics (another term coined by P/A), and superimposition. This was the rebellion of Supermannerism.

During the 1960's, P/A published the first two issues of any architectural magazine to be devoted entirely to interior design. Ironically, both issues, like many other celebratory publications, now seem to have coincided with the conclusions of the movements they analyzed — The Minimal Style in 1962 and Supermannerism in 1968. Or did those publications contribute to this demise? The question is valuable, for this demonstration of the time lag decrease in the history of design may permit interior designers to synthesize the results of the last fifty years into a new and better environmental system for the future.

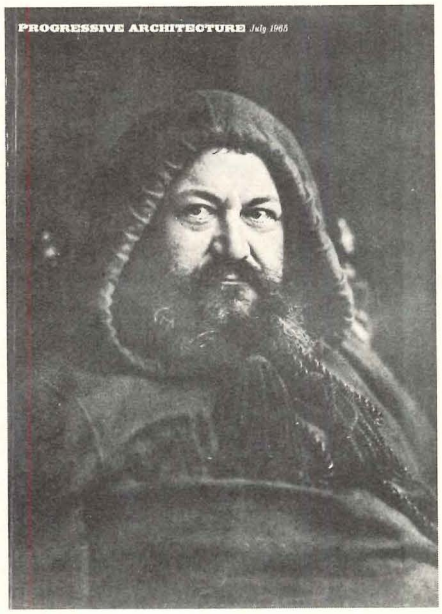


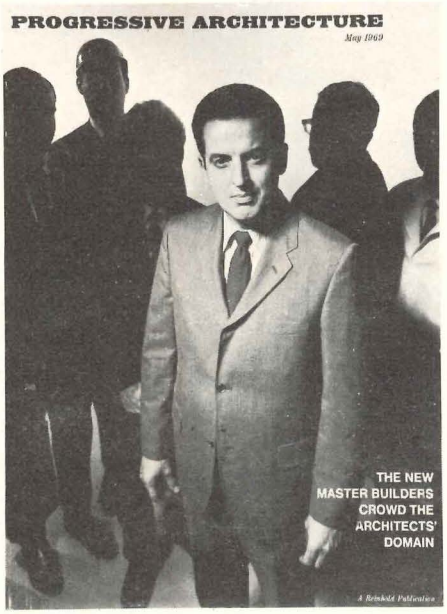
Action Office furniture.
Courtesy Herman Miller, Inc.



Olivier Morgue's chaise, 1965.
Courtesy Museum of Modern Art, Gift of George Tanier, Inc.

From Product to Process:
The Third Generation of Modern Architects





There has been more change in the meaning of architecture during the past five years than during the preceding fifty and more during the half century since 1920 than the 500 years that began with the end of feudalism. From the Renaissance to today, changes in the meaning of architecture must be measured in geometric progression.

In the past fifty years we have seen the architect move from product to process, from building design to the design of living patterns, from designing monuments for great clients to the creation of a new and broader patronage, from directing hand craftsmen to designing industrial procedures, and from posturing as a social butterfly to standing as a social advocate.

If one single notion, in consensus and disagreement, runs through the past fifty years, it is that of form in relation to function.

Between the First and Second World Wars, Functionalism made a mighty effort to cut itself off from the past. Buildings and cities were opened to light and air. The logic of form became an aesthetic as architecture began to lose its definition as "high art." Instead of art for its own sake, the physical needs and functions of man were explored. Aesthetic systems were replaced by structural honesty and undisguised materials, as the concept that architecture should express and symbolize its own function was generally accepted.

The architecture of cubic simplicity that resulted owes its origins to the aesthetics of Cubism and the technology of the industrial revolution. It was an architecture characterized by plain surfaces, and open,

airy spaces unified in a continuous flow. The transition from interior to exterior space was based upon a technology that could fasten slab and column in rigid connection. Since columns could be set back from the façade, the walls dividing interior and exterior space could become mere curtains that, when opened, extended space homogeneously in all directions. Uniformity and the logical character of space and structure were revealed in an architectural language that expressed a new sense of freedom as well as the conviction that logical-scientific principles would master the world.

With the growing distrust of scientific rationalism extending far beyond its architectural implications, the validity of the objectives of Functionalism are being seriously questioned. The logical-scientific rationale became associated with the growing inhumanity of a technocracy blamed for a world of increasing passivity and malaise wherein man has become the eternal consumer, burying his sense of uselessness and alienation in acquisition, violence, and drugs. The triumph of Functionalism, to its critics, paralleled the debilitation of functional man. Formalism, on the other hand, ignored in the triumph of modern architecture, seems to be taking on added human perceptual dimensions. Man seems to have refused to be ennobled by universal space, remaining instead peculiarly himself. Functionalist logic and rationality opened buildings to light and air, yet man still hungers nostalgically for dark, secret, and familiar places.

But the return of formalism within an increasingly structured framework has not humanized our environment. Instead of displaying a mature ability to choose formal alternatives within a limited range of options, a meaningless expression of limitless "freedom" is often preferred. The result is not perceptual relief from functional sterility but, instead, another dimension of triviality in forms, whose sole meaning resides in egocentric choice.

The revolt of the third generation architects, the architects of the seventies, is to secure an integrated human implementation of function and a richer formal language. Current tendencies indicate that a new concept of the world is being shaped. The emerging vision values functional openness but is equally dedicated to change and to fulfilling man's territorial needs. The demoralizing regularity of perfect, geometrically planned neighborhoods yields to irregular squares and streets interspersed with natural phenomena.

Human life must have a place that is a small cosmos — a system of meaningful places. The architect now sees his task as that of forming these places so that that they can receive the necessary content. And since many architects realize the limitations of their middle-class social prejudices, they seek processes by which the user can express his own desires within the design.

The rationalism of functional planning has now to be filled with new forms that define the city in terms of the life within it. There is a general realization that the use of our highly sophisticated tools is too important to be left to technicians or those who can think only in terms of functional optimization.

It is for this reason that architects go beyond functionalism, while retaining its advances, to create an environment of forms rich in perceptual dimensions.

In turning from the logic of forms dictated by simple rationalism, the architect becomes a synthesizing agent. He must find means of practicing such activities that are essential for interaction and cultural development.

The notion of a symbolically meaningful environment may seem romantic in a throwaway era characterized by incessant change. But the desire for such an environment stems from a healthy reaction to the lack of real psychic nourishment in a too pragmatic world.

The Architect of the Seventies

Architecture in 1970 is committed to the postindustrial revolution. According to John McHale, writing in *The Plastic Parthenon,* "past traditional canons of literary and artistic judgment, which still furnish the bulk of our critical apparatus, offer no guide to its evaluation. Such canons tended to place high value on permanence, uniqueness, and the enduring universal value of the chosen artifact. Aesthetic pleasure was associated with conditions of sociomoral judgment. Beauty was truth and the truly beautiful of ageless appeal. Such standards worked to judge

the one-off products of handcraft industry that made up the fine and folk arts of earlier periods. But machine-produced items lack the intrinsic value that justifies them according to earlier canons. Production is now directed to the plurality of goals and preferences of a whole society. World society need no longer be based on the economics of scarcity. There is a revolutionary shift to a society in which the only unique and irreplaceable element is man."

In P/A's 1970 Design Awards presentation, the jurors gave their highest awards to buildings that characterized the goals of the postindustrial revolution as described by McHale. The awards went to designs that emphasized and encouraged a quality of life. "Process, advocacy, social crisis, conservation, pollution are the proper concerns of the architect," declared the jury.

Technology, the omnipotent oaf of the industrial revolution, had little relevance in their premiations. Ingenious technical solutions inevitably proved more expensive than traditional systems when bid. Technology, the jury concluded, was too often ivory tower research.

The base of classic and modern architectural philosophy crumbled beneath the jury's onslaught. Modern architects had declared that if a building is built well, works well, if the spaces are good and structure expressed, that was the architectural meaning of the building. Not so, said the jury, "there can be a contradiction between how the building works, looks, and suits its occupants." It is, according to the jury, much cheaper to do something straightforward in the first place, then add something like a clip-on façade, than it is to distort the whole building to get expression. Art under such circumstances is "unnecessary eloquence," one juror commented.

We know now that a good drawing does not necessarily mean a good building and we are well aware as we look at Corbu's plans for a Radiant City just how bad a city it would be. We have built our dreams and in the realization many of them have become nightmares.

Where Did the Confusion Go?

In the face of such assurance, where has the confusion gone that characterized the outlook of the profession in 1960? What has happened during the past decade? A 1961 "State of the Art" symposium conducted by former P/A editor Thomas Creighton elicited these remarks: "I agree that confusion exists today" — Mies van der Rohe. "There is no question about the existence of confusion" — Minoru Yamasaki. "There is chaotic and critical disorder" — Craig Elwood. "Many feel that confusion exists in architecture today; I myself do not feel confused" — Buckminster Fuller.

Open-Line City

By Cesar Pelli, Partner for design, Gruen Associates.

I have for some time been concerned with the organization of building complexes; complexes where large-scale multifunction elements come together; complexes with traffic, parking, and utility distribution problems.

I find the linear organization along a spine a full answer. I don't know if it is the only answer but it is a good one. With many possibilities still to be explored.

Spine organization to me means an organization based on a central lineal core. This core is the basis of movement. The movement line provides a highly developed, more or less permanent element and the spaces (buildings) are attached to it and become the changing, nonpermanent components.

These thoughts led to Open-Line City. **They are presented as a series of images and not as a complete worked-out system. The difference is important: today we distrust intellectual systems but images are important to anybody working on similar problems.**

We think of a city. A new city. We start with its core. But the core is a line.

It is an open ended line. It can grow at both ends.



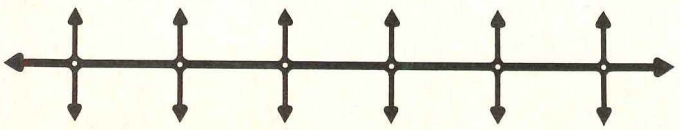
This line is downtown. Where all the action is. It is also the organizational spine.

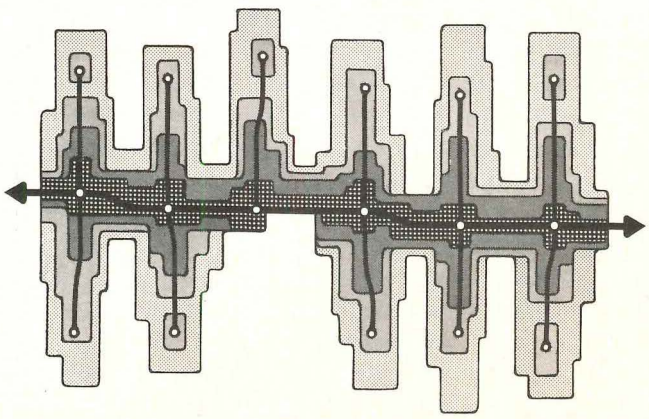


The trunk of a public transportation system. Underground or elevated. Or both.



The city grows perpendicularly to the spine; along secondary public transportation branches.





Highest intensity citywide functions are within the main spine. Neighborhood, lower density functions will develop along the branches.

The spine is a concourse. A multilevel, air-conditioned Main Street.

The lack of a common architectural language and educational objectives, as well as the absence of mutually accepted aesthetic goals proved architecture, by all established definitions, to be in a state of hopeless disassociation. Few recognized that new meanings were being formed by the postindustrial revolution architect. On the political scene, for example, young people were beginning to hammer out definitions. The following statement, from a student publication of 1962, agrees well with the jury's conclusions in the P/A Design Awards of 1970.

"We regard men as infinitely precious and possessed of unfulfilled capacities for reason, freedom, and love . . . We oppose the depersonalization that reduces human beings to the status of things. If anything, the brutalities of the twentieth century teach that means and ends are intimately related, the vague appeals to 'posterity' cannot justify the mutilations of the present . . . Loneliness, estrangement, isolation describe the vast distance between man and man today. These dominant tendencies cannot be overcome by better personnel management, nor by improved gadgets, but only when a love of man overcomes the idolatrous worship of things by man."

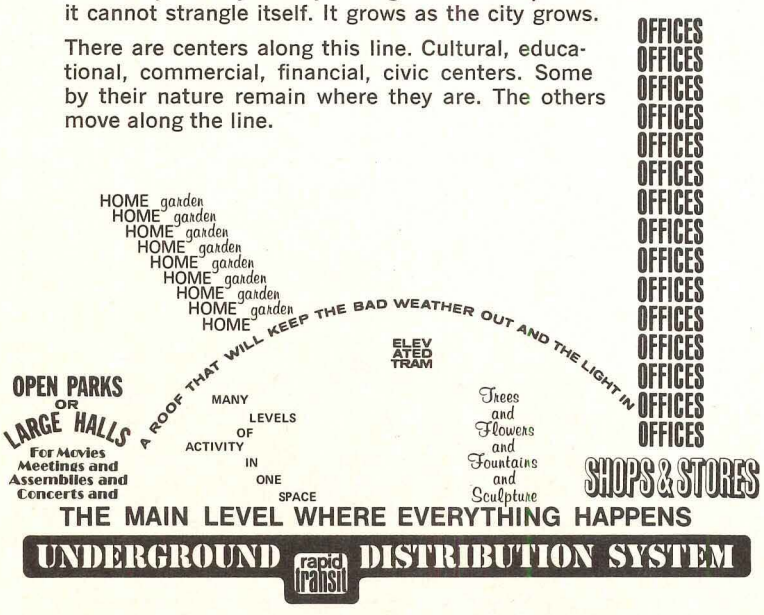
Architecture has paralleled the direction of the counter culture from the confusion, lethargy, and hopelessness of the 1950s beat generation, to the affirmation of life, love, and freedom of youth today. The objectives of architecture are in tandem with the changes that are most hopeful in our culture. The rejection of those aspects of Functionalism that eliminated the human presence have been paralleled by the rejection of an ordered, problem-solving society that left no place for the expression of irrational feeling.

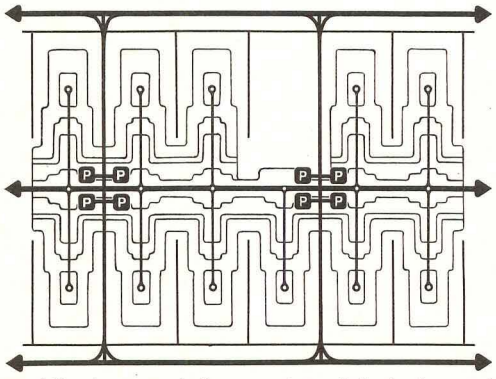
What are the characteristics of the new architecture and the new architect? In the 1920s the giants of the first generation of modern architecture were waging the battle that established modern architecture on an international scale. They were followed by men who secured the newly conquered field. Some merely copied the masters and, consequently, never became great themselves. Others, however, designed highly original works within the principles of modern architecture. The third generation of modern architects differs completely from both.

Architecture Means . . . Whatever It Means

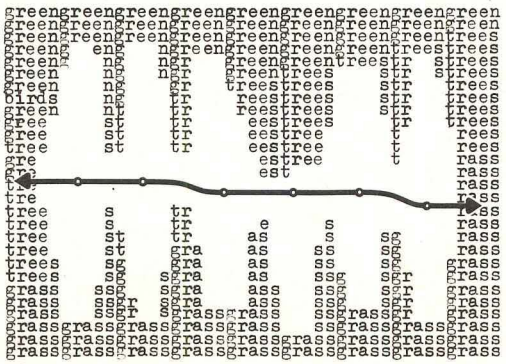
As we begin P/A's second half century and a new architecture for the century's end, we find the architect, as never before, undertaking a great variety of activities. He has expanded all of his concerns, including involvement in the economic, political, and social worlds in his search for the parameters of his profession.

Indeed, the search for limits to violate has become





An automobile transportation system interlocks and complements the basic organization of **Open-Line City** and is linked with the interregional system of highways.



Open land and recreational uses reach the downtown corridor. And are reached from it.

The green recreational open spaces flow into agricultural or natural park land.

as intensive as the search for definitions to reconstruct. The ideas that structure this new order would not have been considered within the domain of the profession fifty years ago.

The Walls Around Ideas

Without restraints, coherent theories of architecture are not possible, yet, it is when boundaries are broken that the great creative periods emerge.

Ten years ago the commercial strip and carwash were outside the scope of architecture, excluded by second generation prohibitions. Today, these forms are being absorbed into our imagery and will probably lose their fascination once accepted. Even the prohibition against building in historic styles, the strongest taboo of modern architecture, may conceivably be reversed in the coming years.

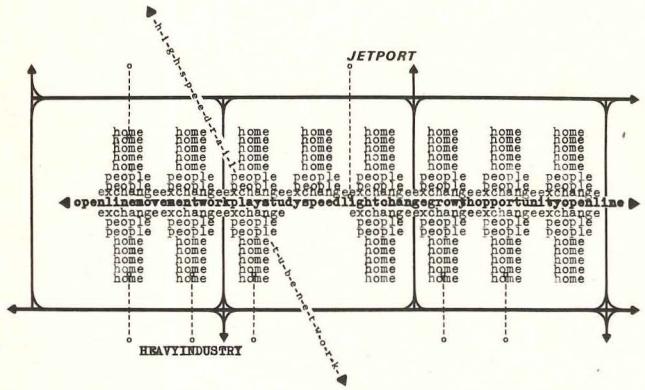
Today we consider living patterns and the environment very much inside the realm of architecture. An interest in the profession as a profession, economically, morally, and politically, is very much a third generation preoccupation. It represents a new self-consciousness, a renewed awareness of architecture's place in the world and its responsibilities.

We know today that good drawings do not make good buildings. In fact, there is considerable doubt that drawings are the best means of informing the builders of the designer's intent.

The architect's traditional instrument, the pencil, implies detailing, but what was a high graphic art ten years ago, today seems tedious graphite drudgery. The architect's alienation from the building process has increased. He finds himself copying manufacturers' details with little knowledge of the manufacturing process, to tell the mechanic how to assemble building elements about which he knows even less. Those architects who realize the implications of this process question its validity. They view themselves as nondraftsmen formulators of building concepts. Instead of placing themselves between the manufacturer and builder, they seek to implement the technical skills of both and become users of technology rather than translators of machine products to handcrafted forms. They specify profiles and sections and are happier "talking" into a computer than drawing.

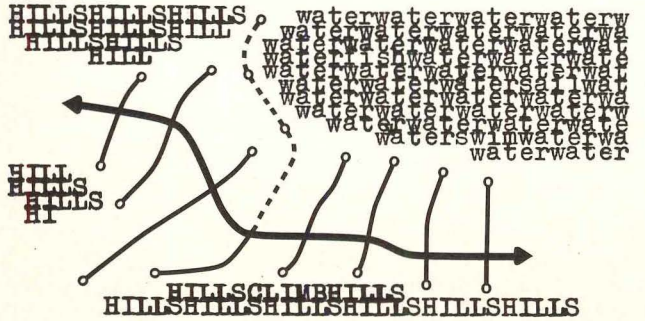
However, the values that motivate the young professional not only are practical, they are different in kind from those that motivated the handcraft architect. Well aware of his lack of exact knowledge concerning the industrial process and the complexities of building assembly, the architect concerns himself with designing profiles and sections and approving details worked out by the experts of the manufacturing process. The result is architect-directed, industrial detailing systems that reflect the industrial

Open-Line City



Modern industrial parks are satellites to the city. So is the jetport.

The spine intersects the rail or tube of the high speed, interurban transportation system. At this intersection is the Transportation Center.



Open-Line is not necessarily a straight line. It adapts itself to the terrain. And other determinants.

The main concourse is a pedestrian environment. It is a succession of public spaces arranged lineally. Within this enclosure we encounter plazas, parks, shopping arcades, sidewalk cafes, art and industrial exhibit areas, amusement centers.

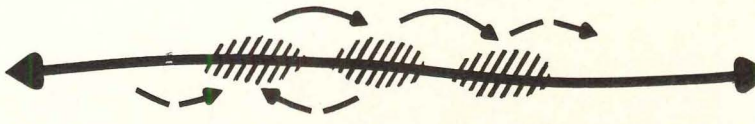




The scale of **Open-Line** is such that for one-half million population it has a length of about 10 miles. At this scale two systems operate — a multiple stop, low-speed "people mover" — with the qualities of a "fun ride," and a fast, mile stop system. Central utilities are part of the spine.

Educational facilities in **Open-Line City** are on the concourse. The university elements are distributed along the spine. The concourse is the campus. Education is part of the city's life.

The basic system of movement is by public transportation. This reduces the dependence on the use of private automobiles. Mobility is improved. Cars per capita are reduced. Parking places per car are reduced further still.



The core is a line. Its commercial centers can fluctuate back and forth along this line. But no area can be permanently bypassed. Total decay is therefore not possible. The tissues are self-healing.

Open-Line City recognizes the need for concentration of public activities. They take the form of a line because this offers the dual advantage of concentration without constriction. The core

process rather than reflect handcraft ideas. One of the best examples of this process is the work of Cesar Pelli who has carried this system to a high art.

Beyond Good and Evil

Unlike the first generation of the modern movement, the architect of the 1970s is not concerned with absolute ethical-aesthetic values in his work, although a great deal of concern is expressed about economic, political, and social values. Gropius's contention that creative aesthetic disciplines have always generated ethical qualities seems to the architect of the third generation no longer relevant. Meaning today is to be in touch with psychological and emotional realities that are, in a sense, beyond any simple traditional concepts of beauty, good, and evil.

Today our concern is not with eternal things, but with change and the effect of change on the life styles of the buildings' occupants. The attitude of the third generation architect is, if the vehicle of change is technology then technology must be reconciled to man.

Originality and the concommitant taboos against copying are now considered part of the cult of genius that plagued the modern movement. Ideas today are common property. The designer who appropriates an idea and improves upon it is hailed as an original creator. The imitator is not one who uses others' ideas but one who uses them poorly. The fund of ideas has become so enormous, so readily available, that good architecture is easy. "Great architecture, as always, is very difficult," observes Cesar Pelli.

The Order of Disorder

The first generation of modern architects was concerned with order; a static, universal, aesthetic order. Today, order has been bartered for change and the static order of beauty for the excitement of process. The "quality" of things, in the aristocratic sense of fine materials and workmanship, has been replaced by a concern for the quality of life, and since life is timebound, not eternal, changing not static, the new architecture has a shifting, vital, intangible quality. Young designers are involved with the enjoyment of direct experience, extracting perceptual stimulation from the environment rather than from an abstract sense of order. Typical of the restraints that have been overcome by architects entering the 1970s is the notion of architecture as an exclusively high art; they have won the right to do things with tongue in cheek.

It was the violation of these concepts of order persisting until the early 1960s that so disturbed the architects of the last decade, who, as a result, saw nothing but chaos in the formulation of the ideas of the architects of the new generation.

corridor is free to expand. It does not have to displace other uses to do so.

A line assures a community meeting place. Everything that happens happens in it. Its length assures diversity without diffusion.

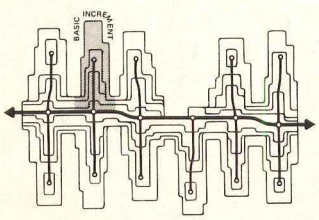
The quality of the concourse is not constant. Different segments have their own definite character. And this character can change with time. Organizational secondary parallel lines offer the necessary redundancy at points of maximum pedestrian intensity.

The public environment is designed. The emphasis is in the design of spaces, not volumes. The public spaces are the primary elements in **Open-Line City.** The volumes (buildings) are secondary. They are free to grow, change according to their own life rules.

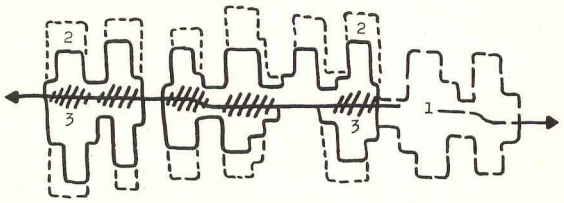
The public environment is designed but it is not static. It is continuously revised, changed, altering itself.

Open-Line develops in increments. Each increment consists of a section of public concourse and its adjacent private development areas. The concourse is built as a public utility. The rest of the land remains in public ownership and is leased. All the leases in a given increment expire at the same time. The city has a built-in mechanism for renewal. City revenues are automatically adjusted to the intensity of land development.

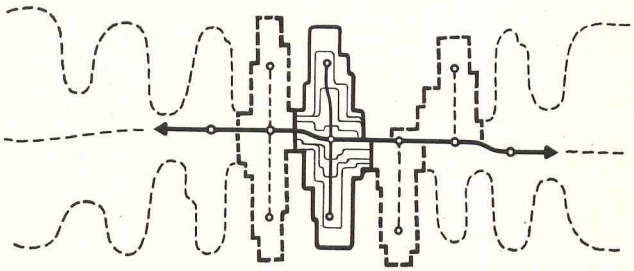
The health and growth of each lineal increment can be reviewed every 40 years when the leases expire. At this time partial or complete renewal would be possible. Public spaces and uses can be added to the core and its intensity increased. This is also the mechanism to provide for lateral growth. Every 40 years the city outlines can be reconsidered and redefined.



Open-Line City grows (1) by the addition of increments, (2) laterally, and (3) by coming back on itself and rebuilding at higher intensities.



The design of successive increments is affected by the actual development of the previous ones. The city learns from itself. Only the first increment is designed and general directions established. No paper master plan to become a straight jacket.



Open-Line City is self-renewing.

Open-Line City has a lineal arrangement because this intensifies human communication. The objective is to increase the quality of city life. The good functioning of the city as a mechanism is only a secondary objective.



The people of the city are the judges of its qualities. They change and alter design and plan. Even its basic premises are subject to review.

Divine Technology

Soon after *Pencil Points* began publication in 1920, Theo van Doesberg proclaimed a basic tenet of modern architecture, "The new spiritual artistic sensibility of the 20th century has not only felt the beauty of the machine, but has also taken cognizance of its unlimited expressive possibilities for art." In the early days of the century, technology could be viewed as "good" because its effects remained largely in the future. We know now that technology is not innocent. As we look at the beautiful technological form of the rocket's atomic warhead, we know its uses are obscene. We know because we have built the dreams of the first generation of modern architects. We know, too, how thoroughly those superbly rational, "scientific" visions of the future now make us hunger for the many "irrational" realities that we begin to value above reason.

Resources — User Needs

The architects' organization of resource to meet user needs is the essential meaning of design. Ezra Ehrenkrantz.

Architects of the seventies are convinced of the necessity of total design. But it is a very different concept from that of the Functionalists who conceived their product as a *Gesamtkunstwerk,* including everything from table napkins to mechanical systems.

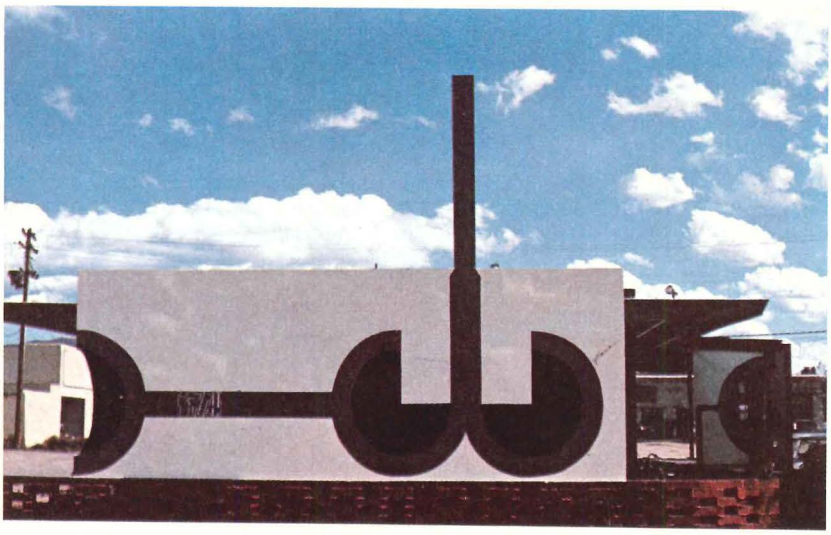
Total design as a *systems concept* encompasses all factors — physical, economic, political, and aesthetic — that impinge upon the process. The methodologies evolved to satisfy this concept not only permit more effective design but assure survival of the profession in an increasingly competitive economic environment.

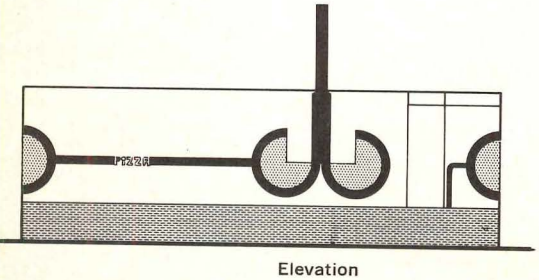
Design becomes not merely the balancing of aesthetic against functional requirements but the arranging of all factors that make up the total circumstances of the building project within a new equation.

This equation is written in terms of resource utilization in which:

Building Use Requirements = Building Resources.

The new approach to design implied by this methodology has been most thoroughly developed in the work and concepts of Ezra Ehrenkrantz, president of Building Systems Development Corp. of San Francisco. Use requirements are derived from the allotted budget together with the space needed for multiple activities. A hierarchy of activity relationships must be established that specifies use-requirement factors such as how facilities cluster, the





Elevation

Hallucinatory Pizza Palace in a Plywood Shell

Lawrence Brown, Designer

Although no studies are available on the effects of supergraphic space on the digestion of pepperoni pizza, the owners of a pizza house in Albuquerque, New Mexico, have charged fearlessly forward on the redesign of their premises.

A roof-high plywood shell, enclosing an outdoor eating area on two sides, masks the old facade. Bright blue, green, and red graphics on the interior can be seen past the bold circles painted on the plate glass windows that are clearly visible through the large cutouts of the outer plywood wall. Circles and parts of circles, vividly outlined in broad strokes of blue paint on a white background, are the first layer in overlapping interior/exterior "screens." "There is some quite effective transparency and overlap between inside and outside," commented Thomas Vreeland, former chairman of architecture at the University of New Mexico.

Lawrence Brown, who was a fifth-year architecture student at the university, transformed the small, nondescript — "tawdry" according to one observer — building into an illusory, illusionary, future-world, **trompe l'oeil,** supergraphic, stage-set environment with the simplest of means and materials — plywood and paint — that have become standard tools of the new medium. The message is the hallucinatory suspension of traditional perceptions of time and space.

Vreeland views the project as exemplifying the objectives and methods of the new decorative movement. "What the new design is fundamentally about," he believes, "is an antitraditional detachment of the symbolic aspect of the building from the functional shell (separation into 'communicative' and 'operative' functions). This building is an excellent example of that thesis, since the decorative work was applied to an existing pizza house without any interference or shutdown of its normal operation."

quality of material finish, of aesthetics and security. Utilization and resources supply the other half of the equation; land, financing, management, technology, and labor. According to Ehrenkrantz, the use of these resources is the job of the architect who organizes them to meet use and needs, thus supplying the essential parameters of design.

Whatever the image-making requirements, the equation holds. But, as Ehrenkrantz points out, many architects are skilled only in building technology and fail to understand the trade-off aspect of design implied by the equation.

An entrepreneur whose finances are limited but has management and technological capabilities, might build in half the time with the same resources. Instead of concluding that industrialized building is essential to build faster and cheaper, it is obvious that we could afford to spend more in building construction to utilize other resources. "In determining what trade-off strategy to use, one must have a sense of how resources interact with one another," warns Ehrenkrantz.

There is also the factor of trade-offs in terms of land density. Buildings of three stories operate on one set of cost parameters, high-rise buildings on another. Land cost and densities can thus determine building technology.

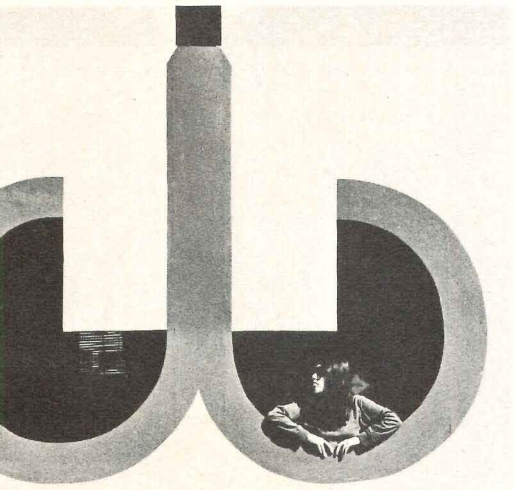
On the next level of design the equation becomes simply:

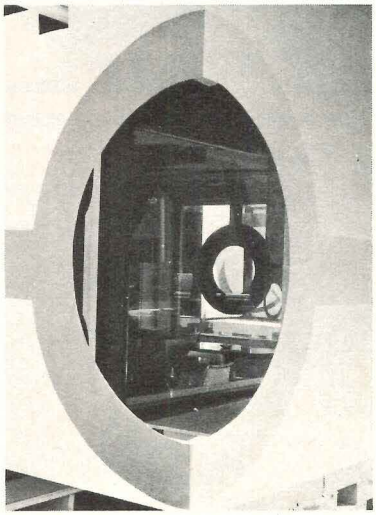
$ = space + quality of environment.

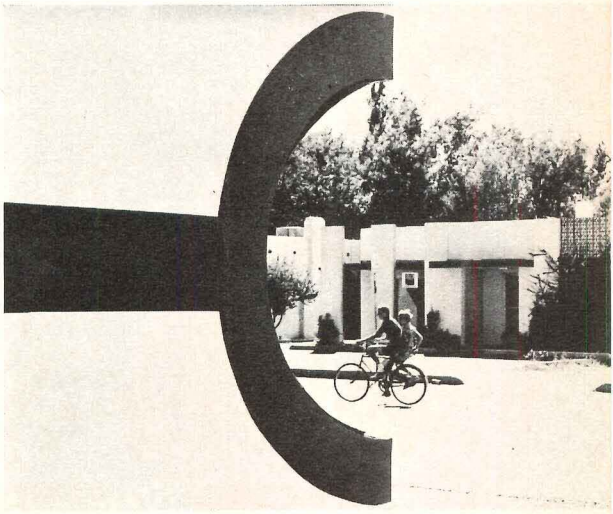
Such services as air-conditioning, lighting, and acoustics must be traded off within the bounds of a particular context. More square footage, for example, necessitates removal of air-conditioning. If air-conditioning and square footage are both to be retained, money must be added. However, as each factor is manipulated a balanced equation must result.

Trade-offs must be examined in every aspect of the building's construction and use. If, for example, two lighting systems for a school are evaluated and one requires a single watt more per square foot to attain the necessary lighting levels, the cost can be equivalent to that of one teacher's salary. A fifty-teacher school, by not choosing the proper lighting system, might deprive itself of as many as three teachers. If comprehensive design is undertaken, the weighing of all factors becomes the architect's responsibility.

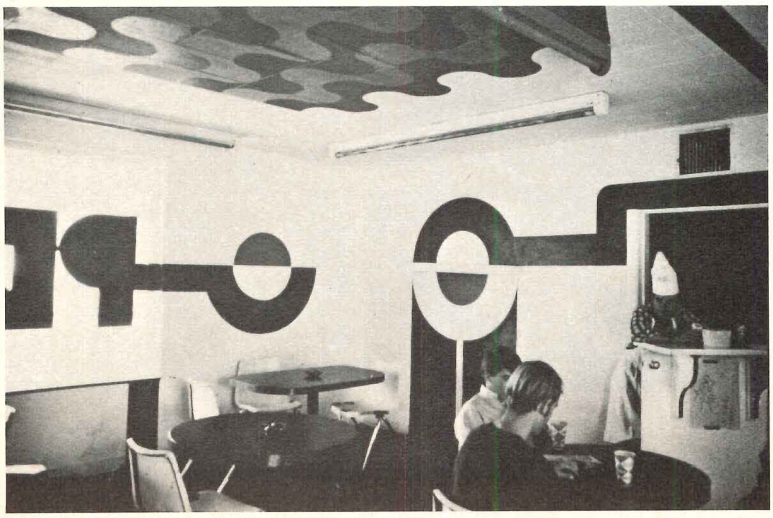
Present design methods involve working at a series of unreal problems. The architect proceeds from schematic to preliminary and final working drawings, making successive compromises in attempting to adjust variable factors with his budget program. But a realistic program should be evolved before design begins.

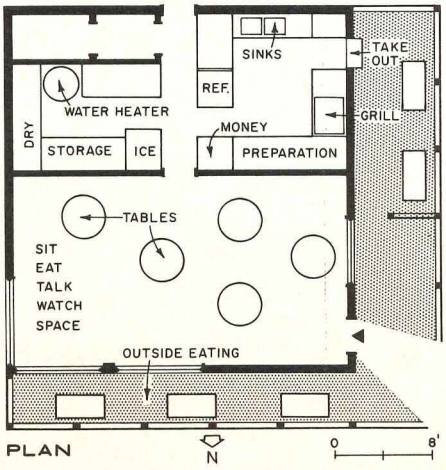






Cookie-cutter windows pierce the middle and corner of the plywood shell.





Client Formation

If the designer opts for new technologies or new management systems, it might be necessary to increase the size of the building program. SCSD was the first project to do this. In the initial evaluation, Ehrenkrantz and his group found that basic needs were not equal to available resources. SCSD restructured the program and organized a large enough client potential in a block of school districts working together. Thus sufficient volume was provided to establish a new context and introduce new factors into the equation.

In Ehrenkrantz's view, the health of the profession depends not only on a concern with technology but with the nature of the client as well. Part of the architect's task today may be that of client creation.

Budget

The architect is seriously hampered by the tension created by his client's budget. More and more clients choose package builders who give price but not design, preferring to sacrifice aesthetics for predictable performance. Indeed, for many clients, design input has come to indicate financial irresponsibility.

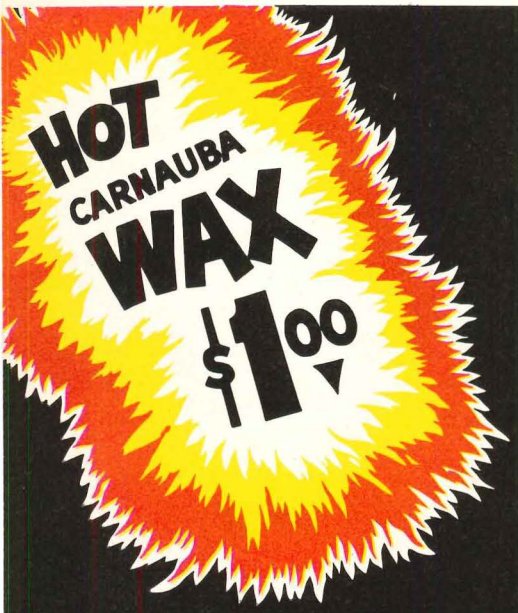
If the architect is to have design freedom, he must establish a strong financial base. Such a base must, of necessity, relate technical performance to cost. However, warns Ehrenkrantz, "Good design requires good designers and the hard approach we take to cost benefit studies is to determine the resources available for design, but this end product can only be successful if the designers are talented."

The Ehrenkrantz office has been working on performance characteristics of various building projects to develop a knowledge, not only of job costs, but of differences in performance level related to costs. This information allows the budget to be established and a design context written to fit the program. The designer then has the freedom to work within the context of a given set of trade-offs.

"I firmly believe that, unless something like this is done, architecture is going to reach the point that candles have today," says Ehrenkrantz. "They are beautiful, ornate, and sold in small shops in big shopping centers."

Power to the People

Far more than their forebears, the architects of the third generation have realized almost universally that rampant technology has to be harnessed. Whether humanized by acceptance, use, and understanding, as Pelli proposes, considered within a systems context as in Ehrenkrantz's view, or totally rejected as part of an abusive technocracy that can

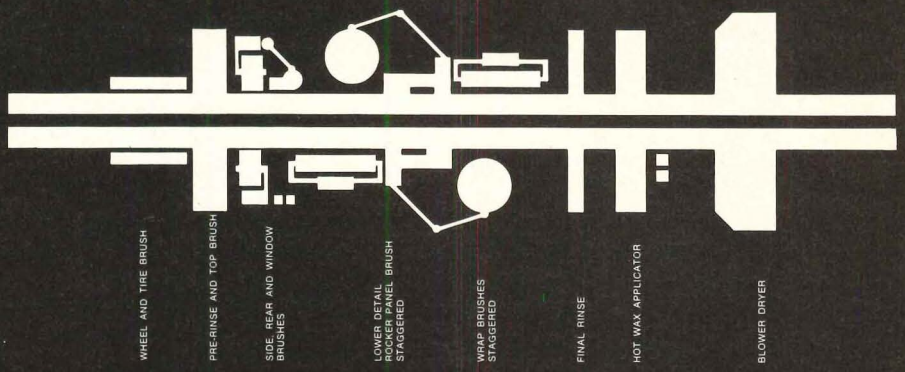


BY

ARTHUR GOLDING

DOUG MEYER

LOS ANGELES DESIGN COMPANY



Southern California is the vanguard of the car wash industry. Over 400 car washes in Los Angeles. STUPENDOUS. One car wash for every 10,000 cars, most of them built in the last 3 to 5 years.

It's impulse buying. Pumping gas is where the money is. Twice as much gas as a service station and at 50% more profit per gallon. NICE.

Identification at 40 mph is the principal goal of design. The car wash is a linear machine typically housed in a modular, incremental structure. One-story space is required; two-story architectural imagery is common. The long axis parallels the main street. OF COURSE. Corner access and ease of flow are major site planning factors.

Automobile-oriented strip phenomena are strong in Los Angeles, as in all the new cities of the West. The car wash is a classic expression of car culture.

absorb and corrupt any attempt at reform, architects of differing opinions agree that few of the characteristics ascribed to technology by the pioneers of modern architecture exist.

According to Professor Richard Bender of the University of California, technology must be used to return the power of choice to the people. The direction of performance standards and user needs, which average out the needs of the people, are, in his opinion, the wrong direction and the wrong uses of technology.

The industrial revolution was characterized by the concentration of technological tools within the control of a ministry of "experts." The task of the postindustrial revolution is to decentralize these tools and fit them for individual human use. Our present technology is based on aggregation. We assume that industry can work only where thousands of people proclaim "We have concentrated all our needs and we have all put ourselves together to fit a size 11½ E. It will be a little big for some of us and will rub others but this is our average."

Such an approach, Bender feels, is entirely wrong. By using new tools, industry has the undeniable potential to manufacture a custom object for each individual need. The difficulty in our position is that we cannot approach technology unless we are very big. The improvements in agricultural technology, for example, have not helped the small farmer. And, if a man goes into the grocery business, he must, of necessity, compete with the A & P.

By accepting the bigness of industry, we have agreed to the condition that it can no longer serve us the way we wish to be served. What is needed is individual control rather than averaging out. Big industry does not have to be any less big. It certainly does not have to be big all in one place.

Dispersal is the characteristic of the postindustrial revolution. We have a number of examples to guide us. The resurgence of religion is due more to the dispersal of the central authority of the church than to an increase in national piety. Community control of school boards strengthens the school systems.

The constant battle for good or bad TV programs misses the point says Bender. If we contrast TV with radio, we find that while TV has grown larger and larger with the same few channels, radio has become smaller. It costs very little money to broadcast and receivers are cheap. The result is a great number of radio stations and a rich diversity of programs and opinions.

There is a constant lament that we have fewer and fewer newspapers yet if we had even less there would be little difference in their content. On the other hand, the proliferation of mimeograph, Xerox, and other copying devices has resulted in a rich vari-





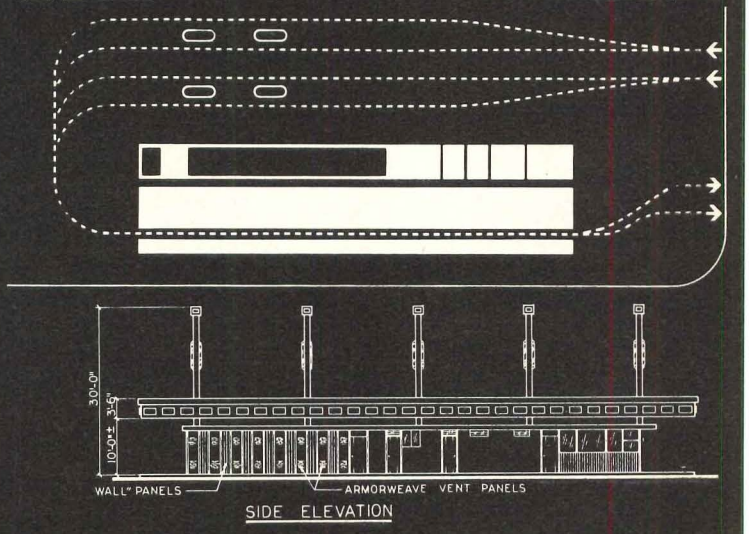


CLASSIC. The package building can go anywhere on any strip, IT'S A NATURAL.

Styles. Older car washes were prefab architectural images in steel. Next came the sculptural period. A few developed into glorious 200′ total sign images. LOOK AT THAT. The new period is funk.

Packaged images. Shorthand communication. The creation of an environment by connotation. The point is not the relationship of objects in space but rather the relationship of images in the mind. FANTASTIC. The non-locational environment.

The overriding image is NEW. Modern style is out because modern means late 40's. Look at gas stations: Shell and Standard are going ranch, Texaco is going regency. New is good. IT'S WHAT THEY'RE SHOWING THIS YEAR.



ety of information dissemination.

The selection system of the society is the price that one must pay to get into the game. We have been putting capital into making products instead of into making the tools that we need to service people individually.

Housing

When we consider housing we forget that our expectations change. The goal of 26 million dwellings assumes that our basic aspirations are not going to change in the next ten years, and that the minimal housing being built today will still be acceptable to the people who inhabit them in ten years.

It is doubtful that we can pass these houses off to the present have-nots. They do not want our hand-me-downs. The emphasis should be on people building and changing their own environment with tools made available to them by technology, rather than using the technology to provide housing that "averages" present user-needs.

The basic building concept of prefabrication based on cores, which architects now call the heart of the house, is an inhuman view of housing. The core, including toilet, bathroom, and waste disposal is not the heart but the bowels of the house. The heart and the soul of the house is in its spaces and the living patterns these spaces generate.

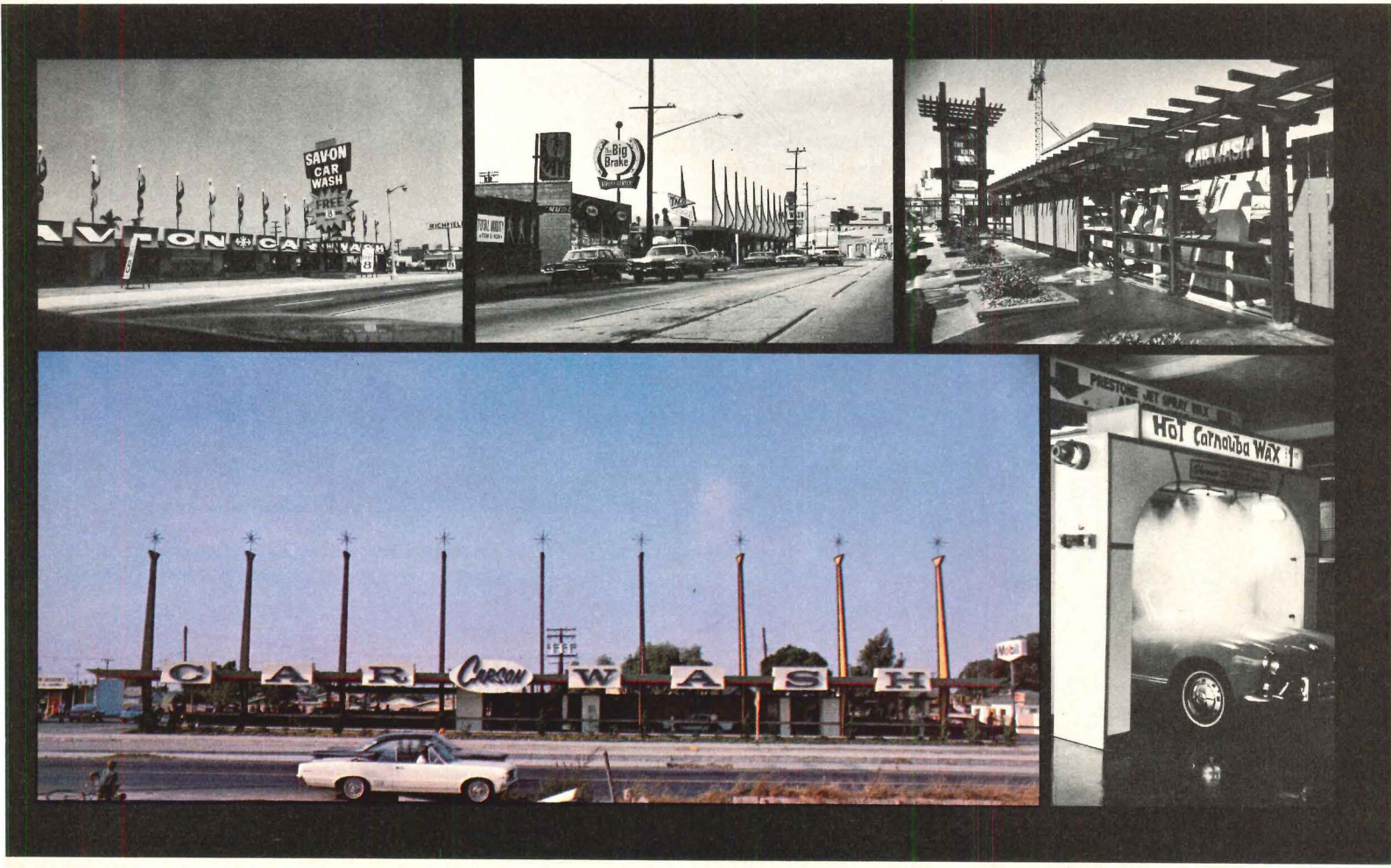
The architect, who for years has fought technology, is now attracted by it and has fallen into a trap. Instead of seeing the mechanical units of the house as the heart, he should see it as a plug-in appliance. According to Bender, the architect forgets his own art, his area of expertise, and builds around technology instead of designing the best living spaces he can and plugging the appliances into them. A washing machine will not destroy the architecture of a house but a house built around a washing machine can hardly be architecture.

The major activity of the architect and planner today should be that of forming some of the images of the large corporations. Instead of designing factories, they should be demonstrating how to make the tools without making the factories, Bender advises.

Programing

The tendency of the computer specialists today is to complicated programing that seeks to interpret the diversity and richness of human life rather than to reduce it to a simple formula to be answered by yes or no. "Yes or no is a symbol of repression," says Bender, "it cannot tell the entire truth. It is a bad match because it is based on too small an option. The interesting discoveries that will change the world will be based on knowing what people are."

Those who speak for technology can claim that no



one has ever seen two steam engines mating and therefore the machine, because it can not reproduce itself, is no threat to us. This is answered by the observation that grass and flowers reproduce themselves but do not mate. They are fertilized by the bumblebee. Man in this analogy, becomes the sex organ of technology and that, according to Richard Bender, is very much what we have become.

Technology can be compared to a tennis game. Every player knows if he stays at the back of the court he can play a long, safe game, but if he wants to run into the net he can finish the game quickly. Since he has no control while he is running, he must get in position before his opponent can return the ball. In the game of technology, we are running in. One of the conditions of our run is that we cannot turn back — it is too late to do so. We must either make the winning shot or be destroyed.

Conclusion

As architecture begins the 1970s it finds itself in the midst of what Daniel Bell has called the "postindustrial society." It is no longer primarily a manufacturing society. Instead, the service sector now accounts for more than half the total employment and the gross national product. We are the first nation in history in which most of the employed population is removed from the production of food, clothing, automobiles, and other tangible goods.

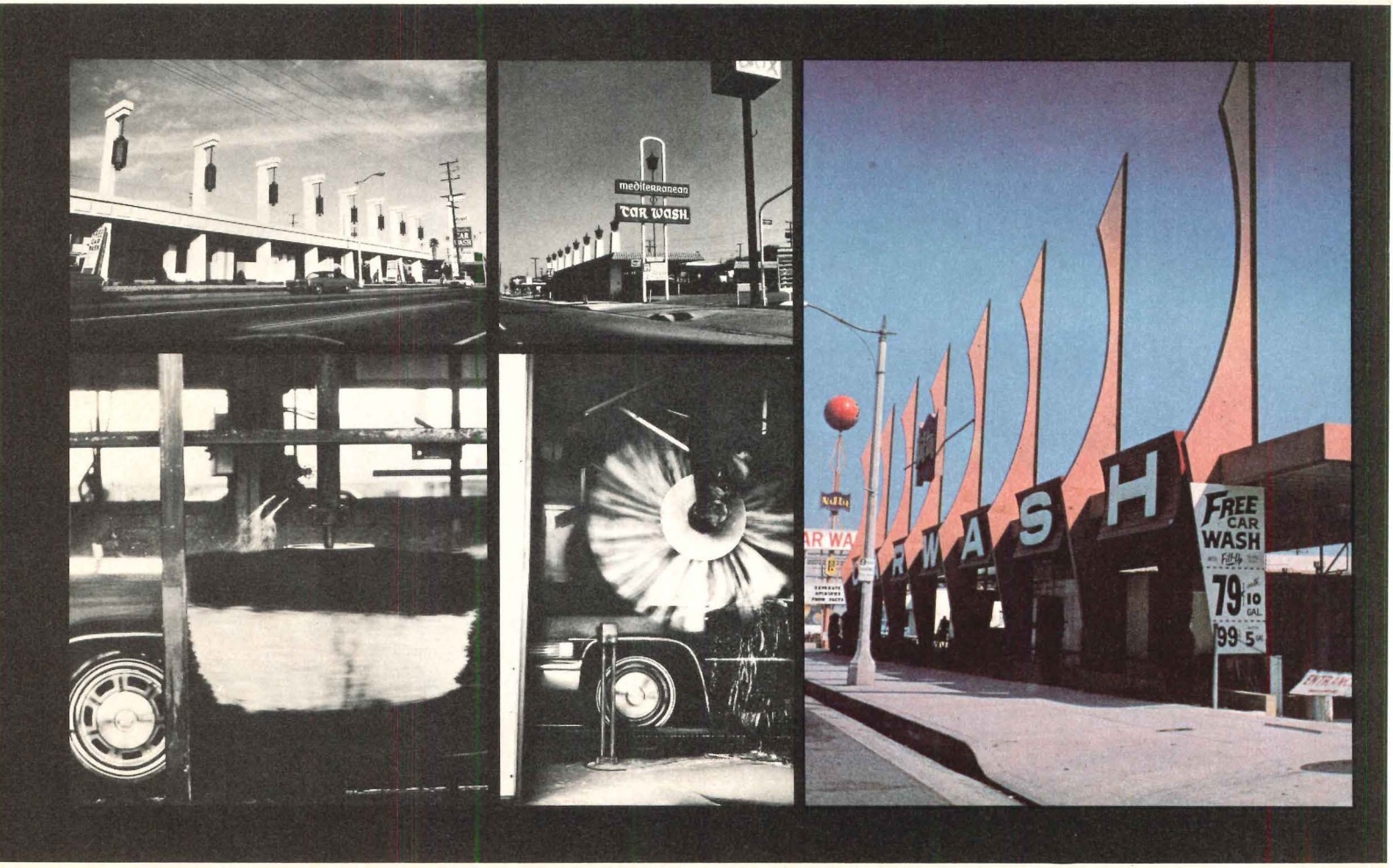
We have among us the first generation in our history to be concerned with the responsibilities of a society of affluence rather than one of scarcity.

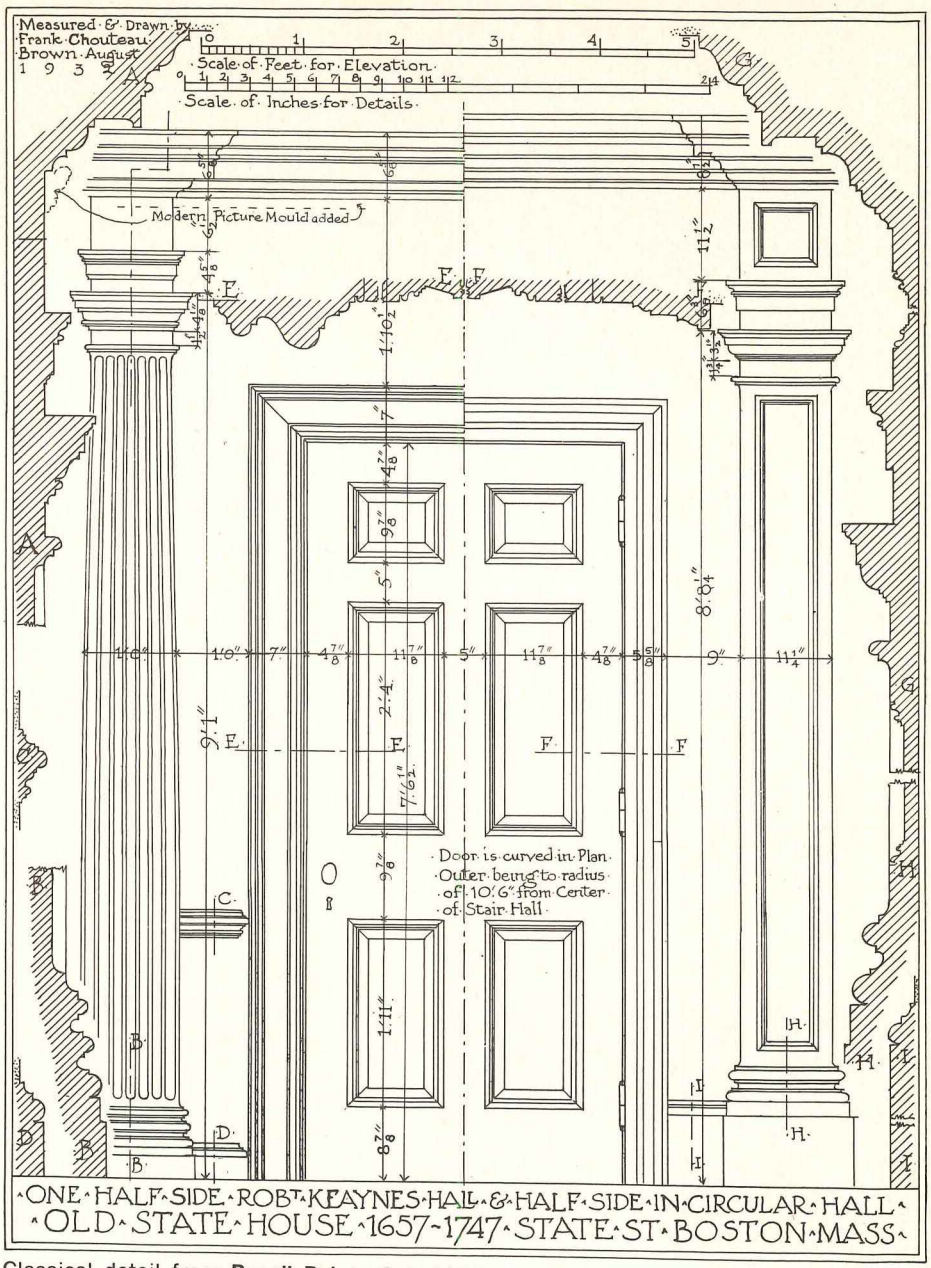
The youth seem to know "in their very souls — almost as if it were a part of their genetic inheritance — that man cannot live by bread alone," says John Eberhard. "They know and feel that objects, from automobiles to houses, no matter how well designed, are well related to our large concerns only if their performance requirements come from the needs of men — and all men, not just the privileged few."

For youth who speak the language of nonnegotiable demands, design cannot be a passive, art-for-art's sake aesthetic experience. As Arthur J. Pulos, a farsighted industrial designer stated, "The concepts of an elite which can ignore thousands in poverty in order to erect stylish monuments to affluence . . . is reprehensible."

The architects of the 1970s know that if their work is to be relevant, it must recognize that things are replaceable. The only unique and irreplaceable element is man. It is here that revolutionary youth, and the architects of today are in agreement. Architecture means whatever it means, but its material is human adaptability and its subject matter is life.

— **Forrest Wilson**





Classical detail from **Pencil Points** Oct. 1932.

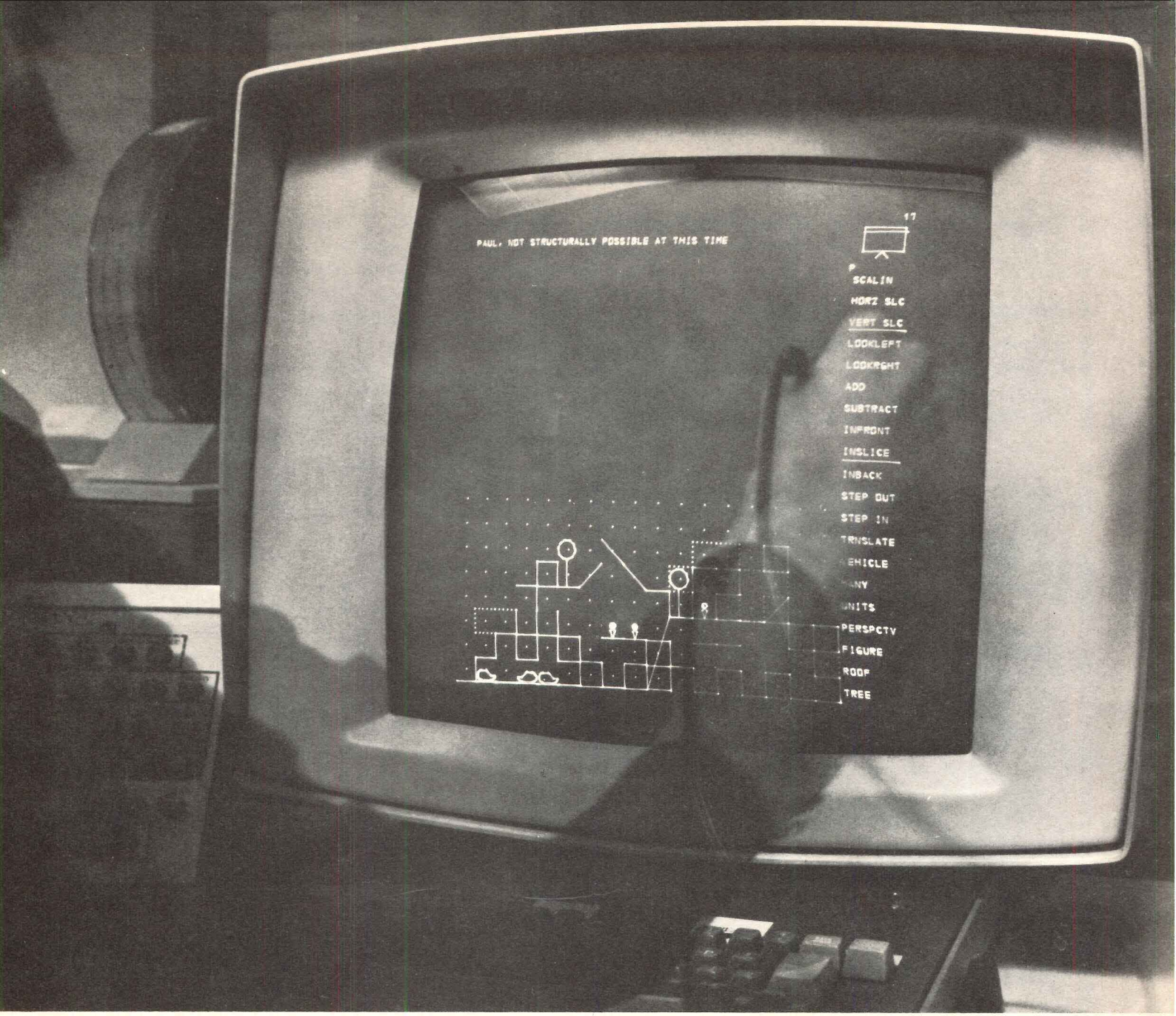
From Pencil Points to Computer Graphics

By Murray Milne

As part of this anniversary issue, P/A has asked Murray Milne to examine the effect the computer has had on the evolution of the profession. Mr. Milne is an Associate Professor in the new Architecture Program at UCLA and is the editor of the book Computer Graphics in Architecture and Design.

For an architect in days past to lay down an ink line on linen or to float a watercolor wash was an act of considerable satisfaction.

Still today, it is pleasing to the senses to pull soft lead across clean vellum, to hear the squeak of a felt tip, to smell the dust of a pencil sharpener, or to tear off a nice square sheet of yellow tracing paper and feel it crackle as it is smoothed onto the board. The smell of ammonia, the feel of familiar triangles and scales, and the pain in the small of the back are all a



URBAN 5, developed by MIT's Nicholas Negroponte and Leon Groisser, on an IBM 2250 console showing use of light pen.

part of the architect's personal sensory environment. It is jarring and distasteful to realize that some day soon, almost all of this may be replaced by the clatter of teletypes, the hum of electronic equipment, and the blue penumbra of great blinking tubes.

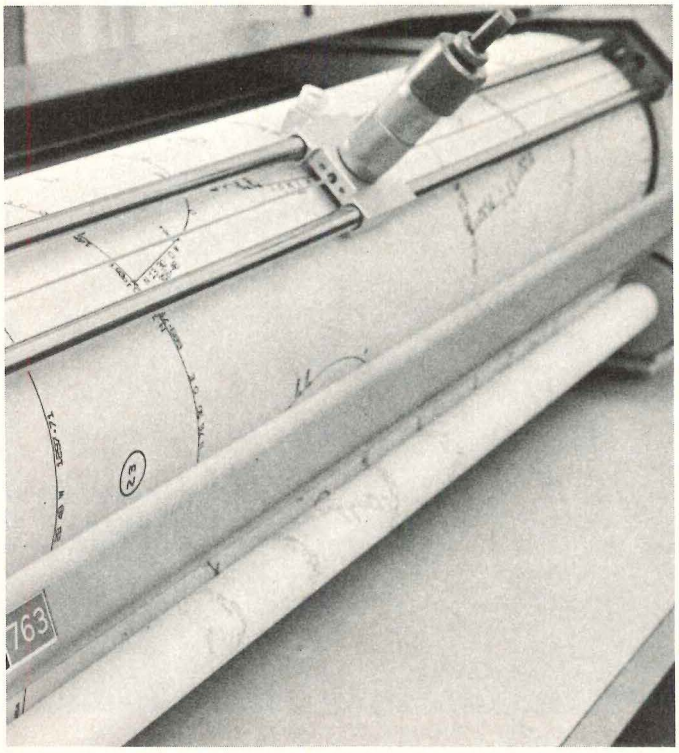
Unfortunately, this is the price architects must pay for technological progress. But at least a few will be either too stubborn or too sensitive to accept it. To a lesser degree, the change from india ink to lead pencil probably caused the same nostalgic sense of loss. It seems inevitable that soon the architect's personal world will be strangely different. Undoubtedly, a new sensory aesthetic will develop in time, but still the joys of the present world will be gone forever.

Whatever its aesthetic satisfactions, drafting is at best a tedious and archaic process. Machines have already demonstrated their superior skill at putting lines on paper. In 1893 the first recording pen oscillograph was developed. Eventually, X–Y plotters were hooked up to analog computers to trace out the performance of dynamic systems in real time. Today, high speed digital computers can turn out drawings of anything imaginable on flat bed and drum plotters with incredible speed in almost limitless quantities. Although the capability to produce automated drawings exists, the problem of making them more meaningful and useful will always be with us. The development of the digital computer has produced revolutionary changes in business, engineering, and the sciences, but up to now it has had very little affect on the design professions. And for good reason. Computers can grind up vast amounts of data and spit out huge quantities of numbers, but this is of little use to

a designer. More often than not, he is concerned with spatial concepts that are best represented in graphic terms.

Communicating with Computers

The major hang-up from the designer's point of view was his inability to get graphic information into and out of the computer. A decade ago, CalComp was one of the first companies to realize that there was a profit to be made if they could solve this problem. With a CalComp plotter, the output of a digital computer can be used to draw lines on paper. The richness and complexity of the drawing is limited only by the size of the computer and the sophistication of the program.

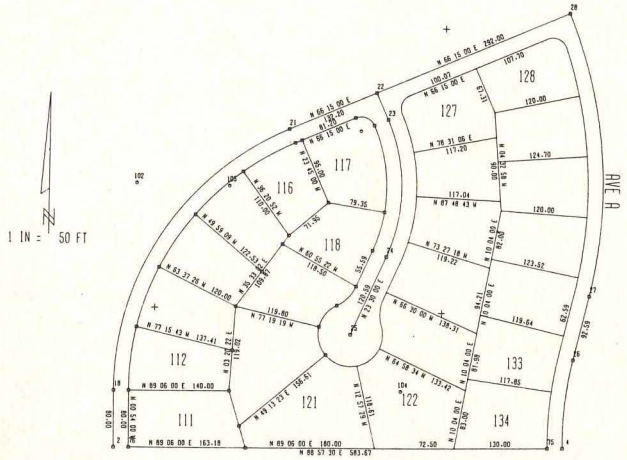


On drum plotters, such as this CalComp 763, lines in the X and Y directions are produced by lateral pen movement and by drum rotation. Courtesy California Computer Products, Inc.

One of the first architectural applications of computer-driven plotters was to produce perspective drawings. In fact, this service is now offered commercially by consulting firms in all parts of the country. Once the data describing a building has been fed into the computer, an endless sequence of drawings can be generated from any station point and on any picture plane. This capability has been used to produce many animated films that move the viewer through purely hypothetical spaces. Today, architects are also using plotters to produce schematics, plot plans, and working drawings. This application is especially efficient where data can be easily manipulated in numerical form or on projects that require the repetition of a great many nearly identical units, such as the design of motels or apartment towers.

Once the technique of outputting graphic information was at least partially solved, the next stumbling block was the problem of inputting graphic information — pictures the computer could understand. The recent development of ingenious devices such as the Rand Tablet, the Sylvania Pad, and the Stanford Mouse has resolved this deficiency. It is now possible for an architect to sit down with a stylus in one hand and a push button in the other and take data points off a drawing as fast as he can move his arm, or for as long as his patience holds out.

Perhaps the reason that more use is not made of plotters and manual inputting devices is that they are such crude mechanizations of an otherwise elegant manual process. Designers correctly sense that



Subdivision maps can be produced on a CalComp Plotter by an IBM 1130 computer using the SAMPS Program. Courtesy PMT Associates, Sacramento, Cal. and California Computer Products, Anaheim, Cal.

One of the first architectural applications of computer-driven plotter

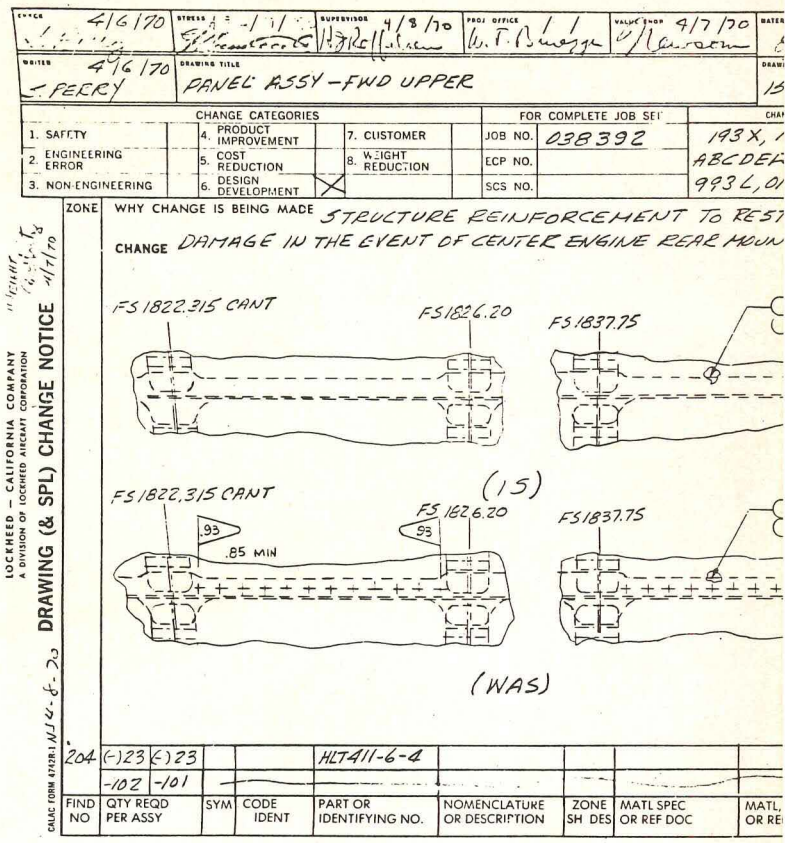
something very important is missing. That 'something' is the ability to interact in a subtle and meaningful way with the ongoing process.

The cathode ray tube (CRT) was invented in 1897. This device uses electrical signals to move a spot of light around on the face of a screen. With the development of high persistence phosphors, the spot could be made to leave behind a line of light as it traced out paths on the screen. Television was made possible by the addition of circuits to control raster scanning and spot brightness. By 1939 it was possible to transmit and display graphic information in an extremely sophisticated way.

Real Interaction

But still the user could participate in the process only to the extent of turning the thing on and off. Engineers at MIT recognized the need for on-line real-time interaction between a human and a computerized information display system. At the 1963 Spring Joint Computer Conference, Steven Coons, Timothy Johnson, and Ivan Sutherland showed the results of their work: a system called SKETCHPAD. With a "light pen" that was wired into the system, the user could trace electronic outlines on the face of a CRT. For the designer, this was as natural an act as drawing on a piece of yellow tracing paper. Once an image was drawn on the CRT, the computer could participate in the process by making the image move. It could be moved sideways, up and down, rotated, or enlarged. With a little more computation, dynamic perspective drawings were possible. The yellow tracing paper had come alive.

Developments like MIT's SKETCHPAD and General Motors' DAC System led to the marketing of the IBM 2250, an interactive display system consisting of CRT, lightpen, and keyboard. Unfortu-

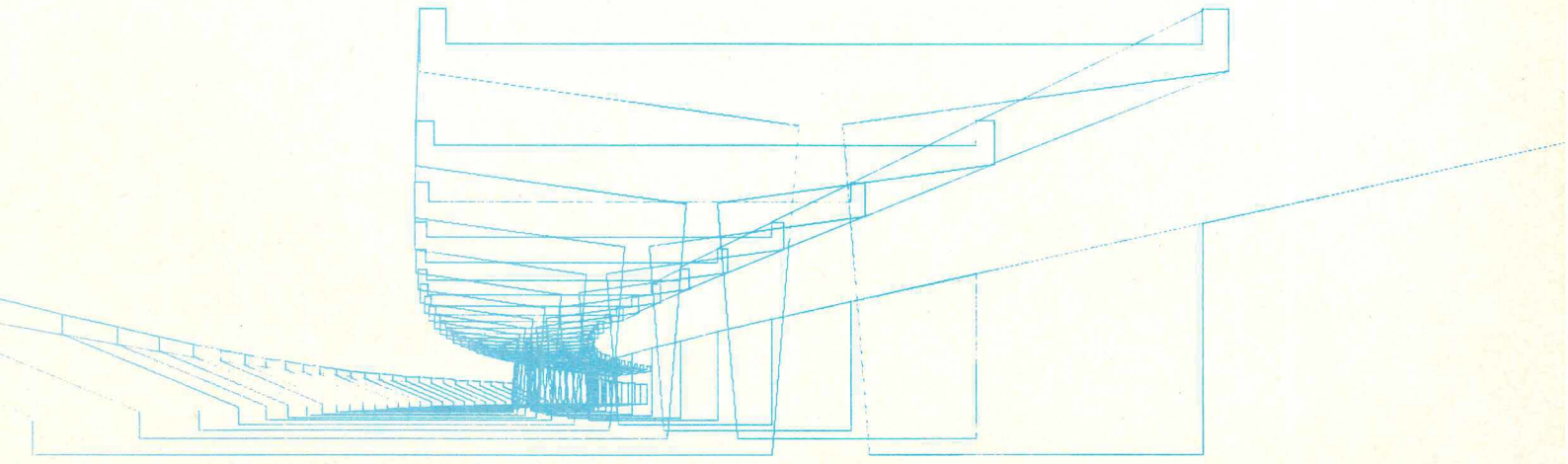


This exterior panel assembly was designed by a structural engineer on an IBM 2250 scope and was drawn on Mylar by a tape-driven X-Y Plotter. Courtesy, Lockheed-California Co.

nately, the cost of this and other similar systems is astronomical. Today, a practicing architect would be ill advised to trade in his lead holders and tracing paper in order to buy such a system, but soon the economics of the situation will change for the better.

In the past few years the aerospace and auto industries have shown that computer graphics have passed from the status of an interesting novelty into a tool whose usefulness can be measured in dollars and cents.

Lockheed California Company is producing some



was to produce perspective drawings. Courtesy Crosstown Associates, Chicago, Ill.

of the engineering working drawings for its new L 1011 commercial jetliner on sixteen IBM 2250 graphic consoles backed up by a dedicated IBM 360/75 computer. The total cost of this system running a fifty-hour work week is approximately $50 per man hour, compared to $14 per man hour for a draftsman. However, productivity is five to twenty times greater. This yields a cost savings of between 140 and 570 percent. Stan Horn of Lockheed's Computer Graphics Office points out that the most important saving is not cost but the fact that an engineer can produce a set of drawings in about one-tenth of the time normally required, thus making it possible to meet manufacturing schedules that are otherwise impossible.

The software in this system reflects Lockheed's hardheaded business approach. They have included none of the frills or what they call 'toy store' options such as rotating perspectives or half tone renderings. Instead, the system is designed to handle plans, sections, and elevations. It will automatically draw and label dimension lines between any two points and will compute areas, volumes, and weights. Standard details or templates of things such as doors, windows, or mechanical equipment are stored in the computer's memory and can be placed anywhere on the drawing by simply pointing at the desired location with the light pen. There are also packages available that will instantly perform structural, electrical, and hydraulic computations.

When the designer has completed his work on the console, he simply pushes the 'print' button and the drawing is traced out on photographic film with incredible accuracy. It takes only three weeks to train anyone from a novice draftsman to a senior engineer to use this system, and about two-thirds of those who have used this equipment like it so well that they refuse to go back to the drawing board. Lockheed is continuing to expand this operation and believes that it is the most extensive on-line application of interactive computer graphics currently in use for the production of engineering working drawings. Clearly the time cannot be far off when architectural and engineering firms will adopt similar systems.

For Greater Efficiency

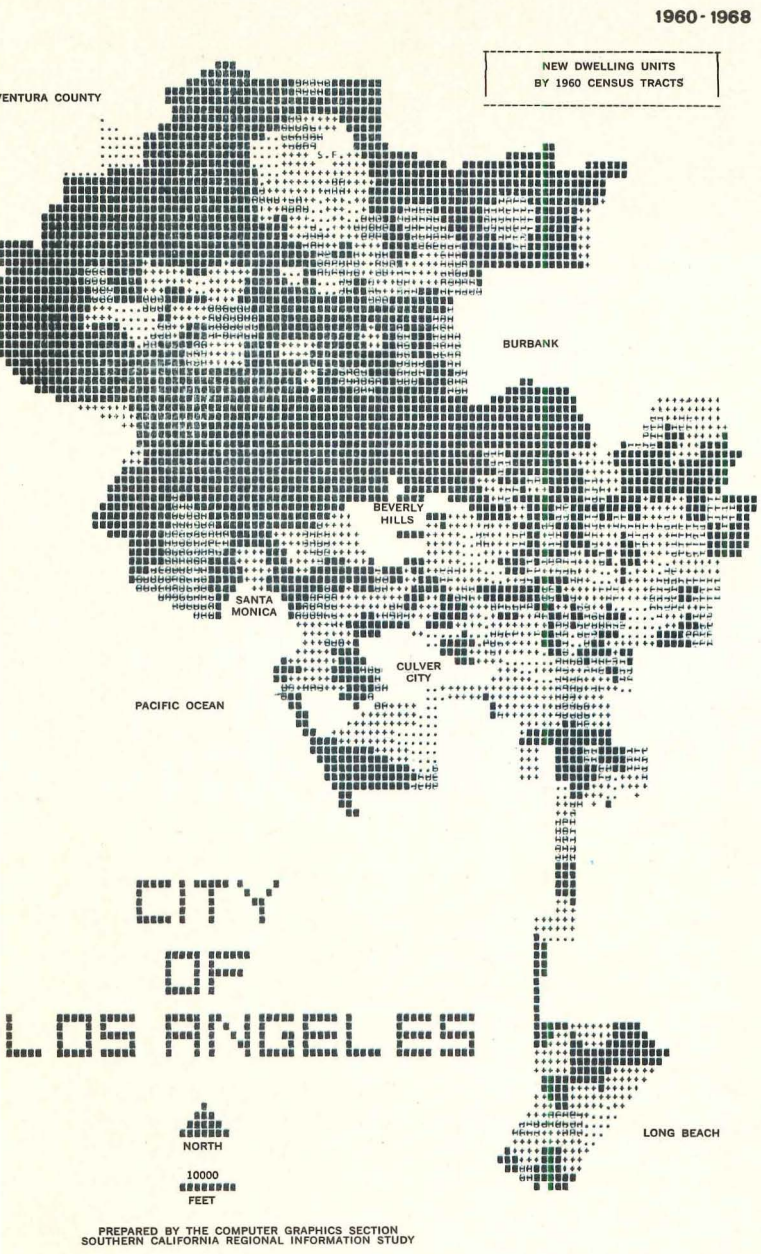
Interestingly enough, this work at Lockheed has shown that even a computer-generated drawing is not the most efficient means of communication between design and production. For example, once a machine part has been drawn on the scope by a Lockheed designer, the data is switched to another scope operated by a numerical control engineer. His job is to describe the path the milling machine must follow to cut this particular part out of a solid block of metal. Like the designer, he also works with the light-pen, drawing graphic information on the scope, but his output is a roll of punched paper tape, which is sent directly to the machine shop. The paper tape is loaded onto a computer-controlled milling machine, and within a few minutes the finished part can be sent back to the designer for final inspection.

It seems clear that as computers become more adept at handling architectural problems, there will be a similar revolution in the method of communication between the processes of design and construction.

One of the most serious drawbacks to the wider application of interactive computer graphic consoles such as the IBM 2250 is their cost. A recent breakthrough in this area was the development of inexpensive Storage Tube Systems. Their main advantage is that they are able to store data directly on the face of the scope without the need to tie up a segment of memory in the computer's central processing unit. Storage tubes have already proven to be a powerful and useful addition to the designer's box of tools. But they will never completely replace 2250-type consoles because of their slower response time and the difficulty of erasing small segments of a drawing.

One of the largest commercially available computer systems is the IBM 360/91. It has the capacity to store over 4 million bytes of information in immediate-access memory, and it can retrieve any item in 0.0000007 seconds. This storage capability can be expanded almost without limit by the addition of peripheral disc and tape-drive units. This system has the capacity to process huge amounts of data with such incredible speed that it is now economically feasible to attack a whole new generation of problems. For example, the results of the 1970 census will be recorded in machine readable format on magnetic tape, and with the aid of giants like the 360/91 it will be possible to process demographic information about the 210 million people in this country in a few seconds. Whether or not this will make any difference in quality of life for our citizens is another matter, but at least it will overcome the logjam created by the 1960 census from which the data still has not been completely analyzed.

Anyone who has ever looked at the U.S. Census data soon realizes that it is nearly impossible to draw meaningful conclusions from it with any degree of efficiency. In fact, it is usually necessary to manually plot out the data in graphic form on a base map. The Census Bureau and HUD recently funded the development of the Dual Independent Mapping Graphic Base File (The DIME File), which will make it possible to represent geographic relationships of urban data by means of computer generated maps. There are a number of ways these maps can be displayed. They can be plotted out on paper or on photographic file, or they can be printed quickly and cheaply using



The distribution of new residential housing units between 1960 and 1968 in the city of Los Angeles was computed from a DIME File and printed out by the SYMAP Program. Courtesy Southern California Regional Information Study: Report No. 2.

the computer's high speed character printers and programs such as SYMAP, which was developed at the Harvard Laboratory for Computer Graphics.

Simultaneity

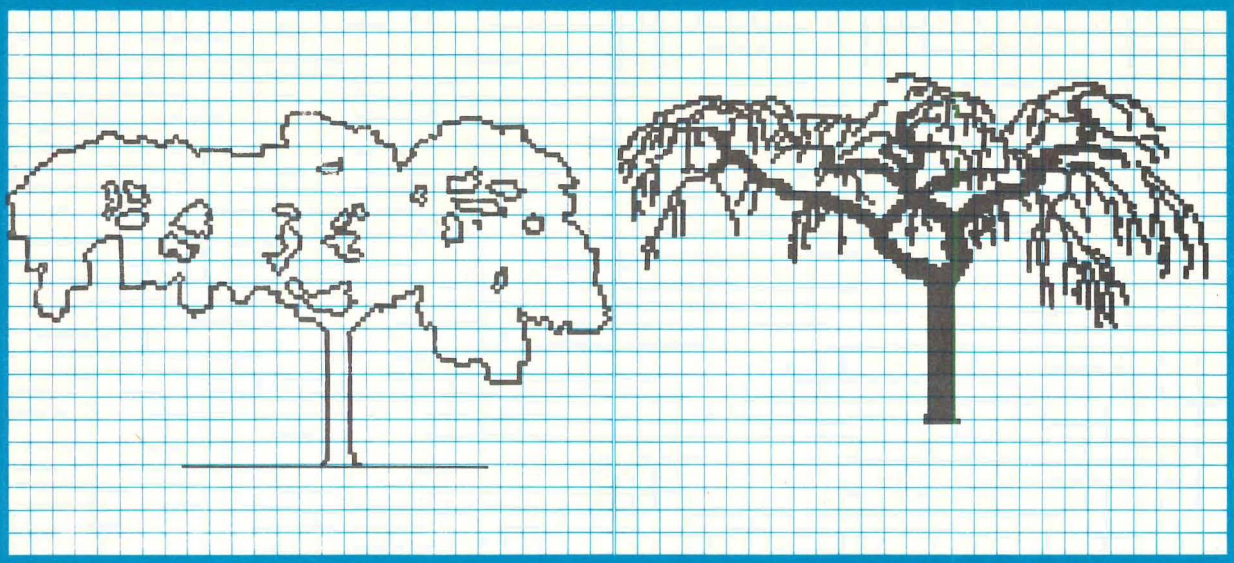
The capacity of these huge machines for number crunching is not their most significant feature. Instead, it is their ability to simultaneously process a great many jobs of all sizes, thus bringing computing power to the fingertips of everyone. The UCLA Computing Network, using one of the two 360/91's on campus, is able to handle up to twelve jobs in its central processing unit at the same time. Some of these jobs are submitted on decks of punched cards, some are sent in over telephone lines from other branches of the university, and some are being input directly from keyboards located in buildings throughout the campus. In fact, 73 percent of the graduate students in Architecture and Urban Design at UCLA have written their own programs and run them on this system. At California State Polytechnic College there is a slightly smaller system, an IBM 360/40, and all of the 1100 undergraduates in Architecture Design are required to use it as part of a basic course in FORTRAN IV programing. Similar timesharing systems are available commercially so that, if he wished, any architect in the world could have a terminal sitting beside his drafting board tomorrow. In fact, some already do.

Accountants and structural engineers have been using computers for years, but now there are an increasing number of things that architects can profitably do on a computer. The Chicago office of Skidmore Owings & Merrill was one of the first firms to put a small IBM 1130 computer to work on a money-making basis. Under the direction of Bruce Graham, they wrote a text manipulation program called AUTO-SPEC that allows the production staff to write a set of construction specifications in one-tenth of the time normally required (P/A, Feb. 1968). Today, three or four text manipulation programs like this are available from software leasing companies.

When a firm decides to switch to a computer program of this type, a major effort must be invested in preparing the master specification. Although this is extremely time consuming, it usually results in a healthy reevaluation of the form and content of the information contained in bidding documents. However, once this task is completed, the specification writer is free to concentrate on the evaluation of new products and revision of construction procedures. The master specification is divided into multiple optional segments in a way that allows the spec writer to select only the information that is applicable to any given project. From this the computer can produce perfectly edited lithograph masters or camera-ready copy. The Construction Specifications Institute has asked Stanford Research Institute to develop an automated system for producing construction specifications that may eventually become part of a total construction communication network and information retrieval system (P/A, March 1970).

Design with BOP

SOM has also developed a set of subroutines that are collectively called BOP — the Building Optimization



Plotting tree growth and development by computer. Courtesy California Computer Products, Inc.

Program. BOP has been used in the design of at least twenty high-rise office buildings and is backed up by the firm's extensive experience with this particular building type. Given the size of the site and information about zoning regulations and building codes, BOP will list all the feasible building configurations that are possible within the limits of the money the client has available for the project. It will then compute and print out the best solutions in terms of least total cost, least cost per foot, or maximum percentage return on investment. Once a particular configuration is chosen, BOP will compute all physical dimensions, including such things as floor height, structural depth, mechanical clearances, core size, lease span, rentable floor area, and the width of fire stairs. It then goes on to figure out size and cost of alternative structural systems, exterior walls, and mechanical systems, plus elevator zoning and performance. As a grand finale, it prints out a total project budget for each building trade starting with demolition and structural foundation, and ending with hardware and metal toilet partitions. One can imagine the client's reaction when he is handed this printout, still warm from the computer, only a few minutes after he first entered SOM's conference room.

Perhaps more than anyone, SOM is aware of the limitations of this approach. The output of a program like this can be no better than the assumptions upon which it is based. They are careful not to rely on it as the be-all and end-all of architecture, but simply as an information resource to aid the designer. The computer still cannot prevent a bad designer from producing a bad building.

Many large architectural firms have developed and are using proprietary programs similar to BOP, and current indicators point to increasing activity in this direction. A survey conducted for the AIA in 1968 revealed that more than 176 computer programs were in use by architects throughout the country. At that time, most of the expertise was found to reside in the larger firms, but today even the smallest offices can become involved in the computer revolution by turning to the growing number of consulting companies that serve the profession. Many other firms, particularly on the West Coast, have established their own small in-house systems groups and are leasing time to run computer-aided design programs, as well as the usual accounting programs and PERT/CPM project management programs.

Last year, one of the larger architectural firms, Caudill Rowlett Scott, spun off its own computer-based consulting company, CRS2, so that it could offer services of this type to everyone in the profession. But by and large, the trend is in the opposite direction even to the point where a few large architectural, engineering, and construction firms are combining operations with computer software companies (P/A, May 1969).



Using the Program

An architect who is interested in exploring the potential of a computer to his practice would be well advised, at least initially, to seek the help of a consulting firm with previous experience in the kinds of projects in which his office specialized. The consultant can recommend the most appropriate programs for his needs and then run them for him and assist in evaluating the results. An architect should be careful to rely only on technically competent and experienced consultants, because situations will inevitably occur in which he is completely dependent on this man's judgment. The Civil Engineering Profession is still recovering from the disastrous effects of a well-meaning but premature oversell that persuaded many firms to switch into computer operations before sufficient software was available.

Clearly, it is not necessary for every architect to learn a computer language, although the task is not nearly as difficult as many people believe. There are continuing education courses available and a number of excellent self-instructional texts on the more popular languages such as FORTRAN and PL/1. Working on his own, an architect would probably be able to write his first simple program after less than twenty hours study. He could have his program punched on cards and run at any of the thousands of service bureaus throughout the country. However, in order to maximize the learning experience many instructors recommend that the architect have a particular application in mind before he embarks on such a course.

Unfortunately, it takes many months to develop a sophisticated computer program, and many of those that have already been written are proprietary. Legally, it is almost impossible to patent or copyright a computer program, but as a practical matter, companies that pay for the development of a program that gives them a competitive advantage are able to protect their investment by carefully controlling all copies of the master decks. Commercial licensing arrangements are available from leading software companies that develop and support large complex programs such as the MARK-IV business management system. In such cases, it is much cheaper for the user to pay the licensing fee and thus avoid the cost and inconvenience of maintaining these systems himself.

There are, however, a great many programs in the public domain. Most of these are developed by university research groups and are available through cooperative exchange libraries such as SHARE. Up until the first of this year, SHARE was supported by the larger computer companies, but recent government antitrust suits have forced them to divest themselves of all activities of this type, so the future of these cooperative libraries is, at best, uncertain. However, all programs that were previously entered in these libraries will continue to be available.

Available Programs

One example of the publicly available programs that might be of use to architects is a series of spatial allocation models, such as CRAFT, FLP, and ALDEP. Most of these were written by industrial engineers to solve plant layout problems. William Mitchell, at the Yale School of Architecture, has discovered at least 29 different approaches to this problem. Although the present state of the art of spatial planning programs is not altogether satisfactory from the architect's point of view, Mitchell predicts that a new algorithm will soon be developed that will make it possible to successfully automate this aspect of the architectural design process.

James Olsten of Penn State University has pointed out that computer applications in architecture have tended to lag behind other professions because of a lack of clearly defined methodology. However, this situation seems to be changing. He found over two hundred articles in the literature that deal with some aspect of computer-aided architectural design, and all were written within the last ten years. At least five books dealing specifically with this topic have been published by Campion, Harper,

Milne, Negroponte, and Owen. There are even two journals, The Bulletin of Computer-Aided Architectural Design, published by the University of Strathclyde in Glasgow, Scotland, and the bulletin of the Special Interest Group in Planning Architecture and Construction of the Association of Computer Machinery. From this it would seem that the widespread availability of computers has generated renewed interest in design methodology.

In a design problem of any complexity, the architect is confronted with much more information than he can keep in mind at any one time. In order to overcome this problem, designers intuitively structure this information into small reasonably independent subsets or clusters. A number of researchers have developed computer programs that are intended to help the designer structure his design problem. Among these are HIDECS by Alexander and Manheim, RECOMP by Bierstone and Bernholtz, VTCON by Charles Owen, EPS by Kennedy and Davis, CLUSTR by Murray Milne, MATRAN by Miller, Khachooni, and Olsten, and CLUMP by William Mitchell. This cacaphony of acronyms only serves to demonstrate the increasing amount of interest in the problem of developing computerized tools to aid the architect during this most challenging phase of the design process. Each of these programs performs a slightly different function. Some can figure out the proximity of all the spaces in a project from which a bubble diagram can be drawn. Other programs are able to organize the goals or requirements of the project into small manageable subsets so that the designer can see the relational structure of the problem. But in no sense are any of these computer programs capable of making design decisions. They all depend entirely upon the information the designer supplies initially. This is a fact that escapes many people who are opposed to the use of computers in architecture. It has been said many times, but probably bears repeating: computers will never replace the designer, they can only relieve him of some of his more tedious tasks and allow him to concentrate on the more creative and challenging aspects of design. Perhaps the only conceivable situation in which a computer could replace a human is when the human stops thinking for himself.

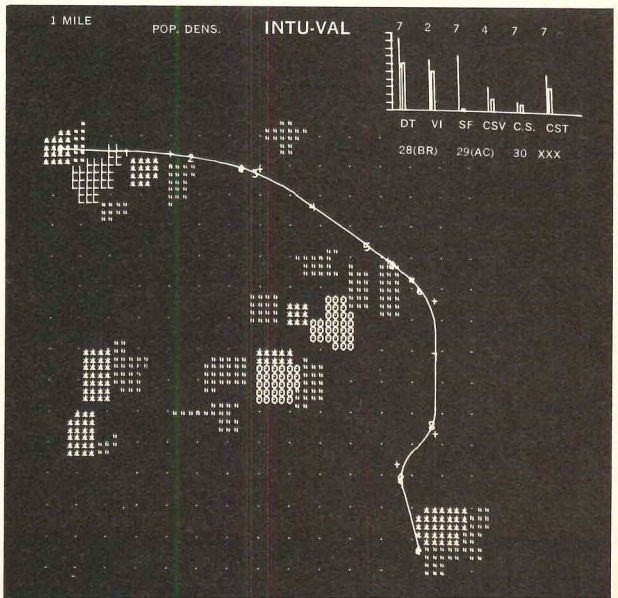
The development of on-line terminals and graphic consoles has made it possible for the user to interact directly with the computer while it is executing his program, thus allowing the user to intervene at any point to add new information or to modify the way the program is operating. This has the effect of making the computer much more responsive to the designer and relevant to the kinds of things he is interested in doing. From the architect's point of view, this is a situation more closely approximating man-machine symbiosis.

Creative Interaction

The possibility that a computer and an architect can work together interactively to solve urban design problems is being tested by William Porter at MIT with a system called DISCOURSE, and Peter Kamnitzer at UCLA with his INTUVAL project. From the designers' point of view, these two systems are similar in that both display a map of the region under study, and after he has made various decisions, both systems help him evaluate the consequences of those decisions. For instance, he can establish the location of a new freeway or a new community center, and the computer can figure out the effect this will have on future residential growth, or on the establishment of commercial activities, or on the preservation of scenic areas, or on whatever evaluation criteria the designer feels are appropriate. Both of these programs are backed up by large data files allowing the designer to instantly draw on whatever information he needs. Although both of these projects are still in the experimental stage, they demonstrate that in the near future designers and computers will undoubtedly be on better speaking terms.

The possibility that the computer could become a design partner to the architect is the goal of other researchers. At MIT, Nicholas Negroponte recently developed URBAN 5, an interactive system that was designed to evolve over a period of time to become more compatible and responsive to the designers' individual needs and working habits. In this system, the computer can be assigned the task of periodically checking and evaluating certain relationships that the designer has decided are critical. The computer can check such things as the amount of sunlight that enters a living room or the requirement that no bedroom window can be seen from another apartment.

Using the INTUVAL Program, the designer can make intuitive decisions, such as establishing a freeway route, and then can ask the computer to evaluate these decisions according to six or more criteria that have been previously established. Courtesy Professor Peter Kamnitzer, UCLA.

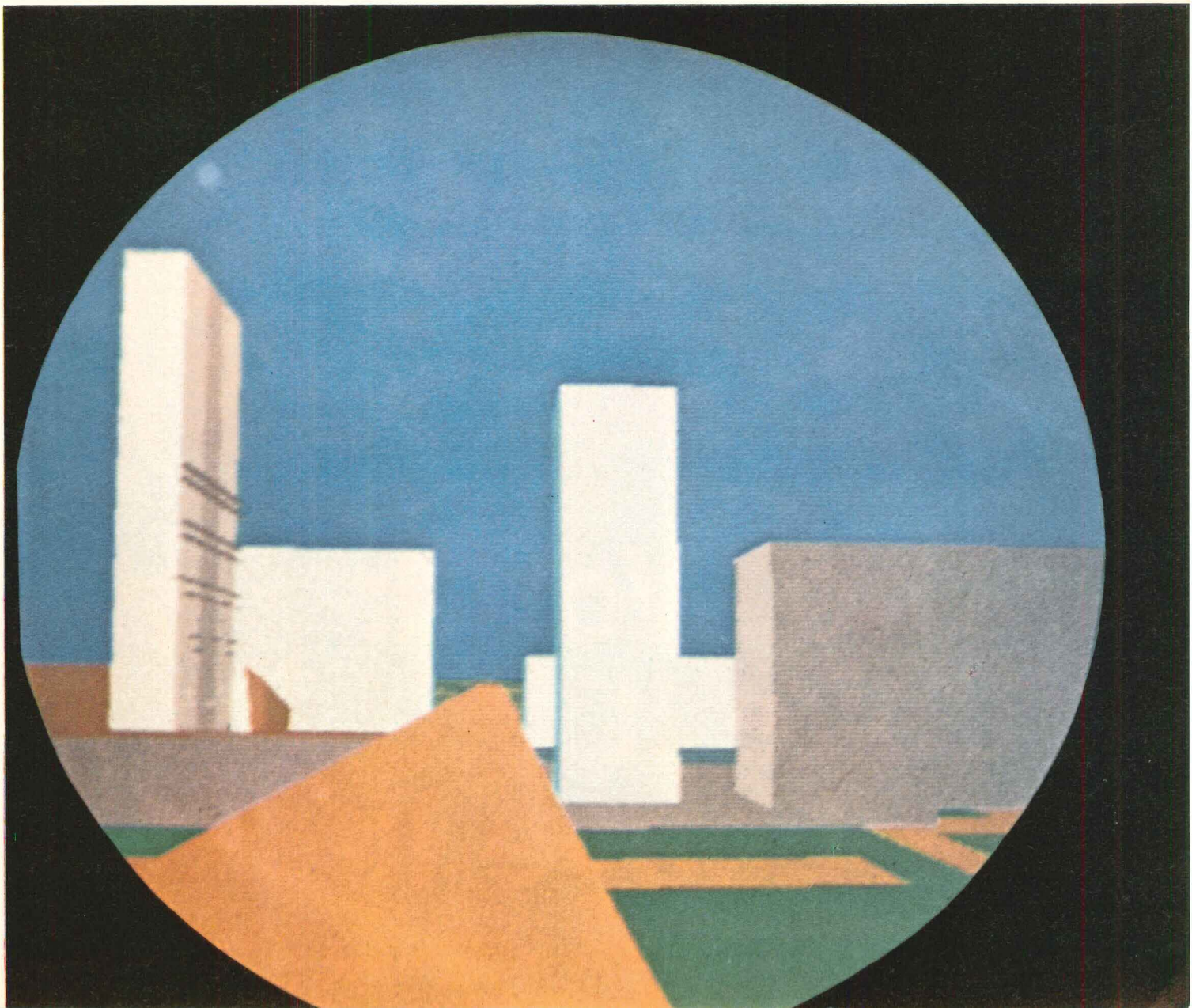


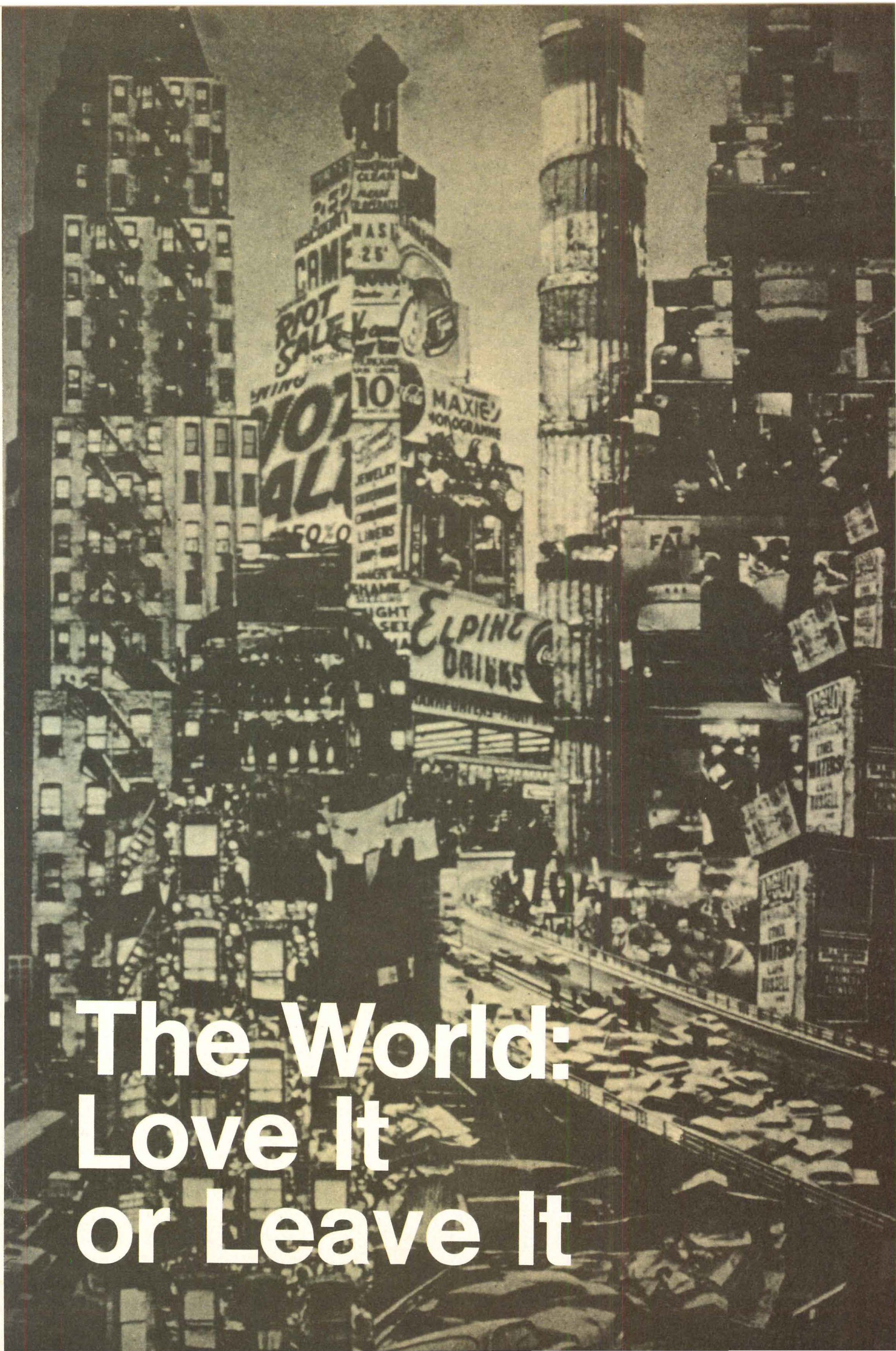
The computer will periodically interrupt the designer to tell him if any of his criteria are not being met. If the designer does not want to be bothered with this kind of information, he can tell the computer, "Skip it." The computer can remember all of this, and gradually learn the kinds of things the designer is interested in. On the basis of this intimate communication between man and machine, the system should develop a kind of design intelligence that will accurately reflect the architect's personal design process.

Negroponte has since abandoned URBAN 5 to concentrate on what he calls Robotics, which are self-organizing systems designed to see or feel or otherwise sense various aspects of the real world. Eventually he hopes to develop enough of these devices so that he can build a second-generation architecture machine.

One of the most startling and impressive architectural applications of computer graphics was demonstrated by Peter Kamnitzer of UCLA and Rod Rougelot of General Electric. Using the special purpose display system GE built for the NASA Moon Landing Simulator, they produced a film called CITYSCAPE that moves the viewer through a full-color, three-dimensional city of the future that exists only in the mind of a computer. With three different controls at his fingertips, the viewer can go any place in this city and look at anything he wishes — he can even fly through solid walls, if that is what turns him on. At any point it is possible to change the design and then to reexperience the modified environment. It will be many years before this kind of capability is available to all architects, assuming that it is desirable, but at least it indicates the fantastic possibilities that lie ahead for the architectural profession.

In Project CITYSCAPE the color TV screen shows the viewer what it would be like to move into and through a purely hypothetical city. Courtesy Professor Peter Kamnitzer, UCLA, and Rod Rougelot, Electronics Laboratory, General Electric, Rochester, N.Y.





The World: Love It or Leave It

Although the crisis of the environment cannot wait another decade for answers, indications are that it is going to have to wait. In the face of purse-string resistance, ignorance, and blind faith, we act slowly. However, one fact emerges from our current ecological "spring cleaning"; ecology is too important to trust only to ecologists. As "new-left" spokesman Murray Bookchin says, "the crisis is a social problem in which overpopulation and technological earth-rape are only results, not causes. The causes lie with our desire to turn everything — people, love, sex, the earth — into commodities for consumption." Others feel that this is an overstatement, stressing our ability to travel along the consumptive path forever as long as we clean up behind us. An optimistic streak in these people assures them the earth is limitless.

So far the crisis has not forced men to band together for the common goal of survival. Yet many disparate, and fascinating, cures have been proposed. One thing is certain. As the point of asphyxiation approaches, those idealistic cures that seem unacceptable now, will become more and more feasible, and the "system's" motivating force could be diverted from consumption to life. Eventually, the student cry, "be realistic, do the impossible," must prevail.

The effect man is having on the world is to bring it back toward its original state. By remineralizing the earth's surface with concrete and asphalt, at the same time simplifying the food chain by exploiting the land and killing off plant and animal species, we are destroying the diversity upon which life depends. Although this problem has existed for a long time, it has escalated from an individual to a global crisis. It has been speculated that lead used in Roman aqueducts had a debilitating effect on the Empire. In the 1930s, Callen and Schlinks' classic book *100 Million Guinea Pigs* provided a pharmacopia of poisons then being added to Americans' food. Today we have mortification of the biosphere, and all life is threatened. To reverse the trend requires political action. Whether legislation or revolution will provide the means to apply the necessary cures is a controversial speculation. Here, we are primarily interested in some of the most thought-provoking of proposed cures. Localized cures, such as how to clean a river, can be dealt with best by the ecologist. But idealistic cures, dealing with the problem's essence, come from many

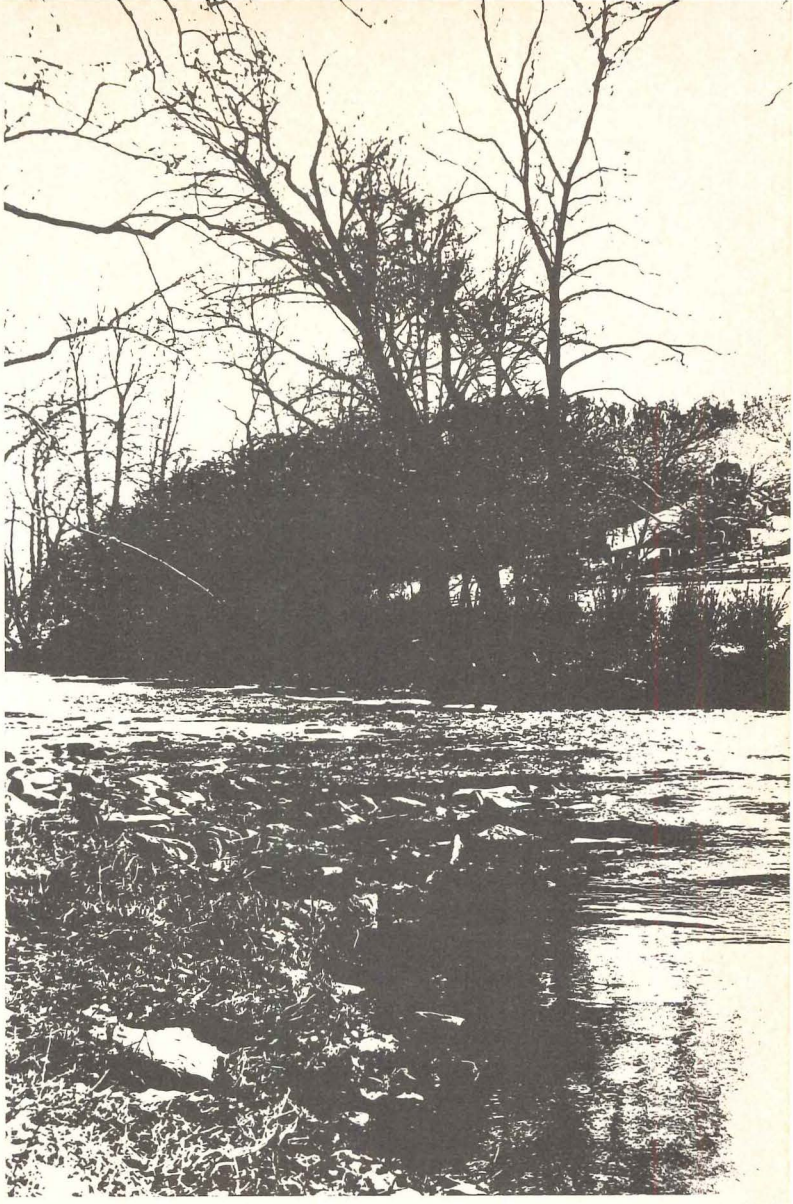
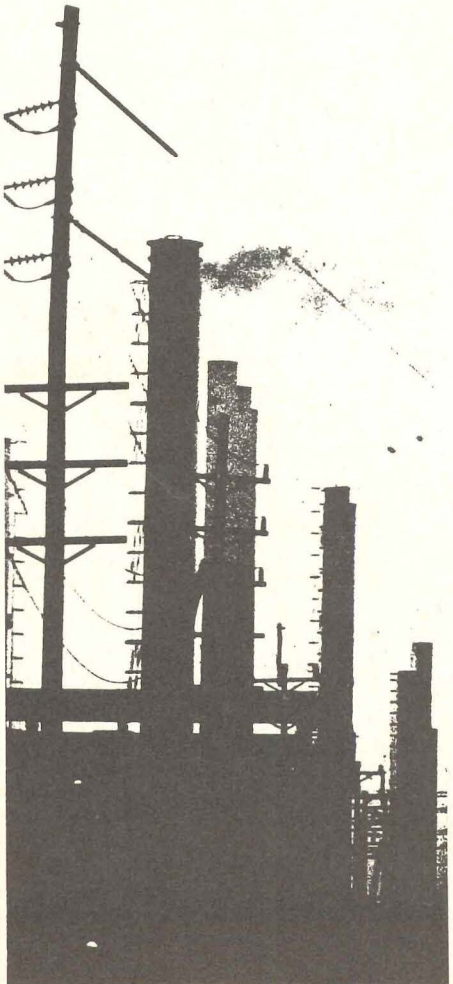


Photo: Eileen Christelow



Photo, left, is by David Tinker. Photo montage, opposite page, was created by the Research & Design Institute. Both are from "Pollution, Life-style: A Visual Statement." an audiovisual presentation assembled by Jeffrey Blydenburgh and Richard M. Hood, architectural students at Rhode Island School of Design.

sources. Each day these cures, without in any way changing themselves, become a little less idealistic — a little more realistic.

Architecting the Universe

Three years ago, two Russian theoretical-scientists, Shklovskii and Sagan, published a book called *Intelligent Life in the Universe.* One chapter in this book voices the ultimate extension of mans' land-pioneering spirit, and his past method for curing pollution and soil degradation. The plan is theoretical, but historically conventional, following the path of all pioneers.

Working within the limits of our present technical capabilities, the two scientists propose creating a new elipsoid-shaped "planet" that would surround the sun at the distance of Jupiter from the sun. People eventually would live on the inside surface of this new "planet." The planet would be formed by ionizing Jupiter in its three-dimensional elliptical path about the sun. Through genetic manipulation men could then create organisms, that could proliferate when let loose on this new surface. By gradually building up to higher forms of life, in time, we could re-create the earth's biospheric evolution, and form an atmosphere where men could live. The size of this new frontier would be huge when compared to earth, and since the sun would be on the inside, it would shine practically all the time. Then, like the early New England farmers, we could move on to fertile lands and leave the worked-out earth behind.

Miniaturization Is the Key

More down to earth is architect Paolo Soleri's Archisonti, a city to be built beginning this June in the Arizona desert. Archisonti represents a radical approach to national or even world planning. In Soleri's own words, "The thesis demands a transfiguration of the earth without defiling or disfiguring its own cosmic aspects. The performance of the professionals — engineers, architects, and planners — are doodles on the back of a cosmic phenomenon and will not do. Unlimited doodling produces squalor. Society must become, in essence, a single organism in order to adequately produce. This is only possible through miniaturization, and we can begin by miniaturizing man's container, the city." To accomplish this, cities must be made more compact and efficient so that as much land as possible is left in its natural state. Or, as Soleri says, "Miniaturization minimizes the handicap of the space-time strait jacket. In Archisonti, people will get places faster with less energy wasted."

Technology is the medium that will allow the city to become more densely complex. Part of Soleri's reason for building Archisonti is to check out the technology necessary for miniaturization.

In romantic ecological circles technology has become anathema, and is looked down upon as the cause for the present crisis. Yet technology, when it recognizes the limits of its resources, is able to exercise an inherent defense mechanism that assures its sustained life. The telephone system is an excellent, graphic example of this process.

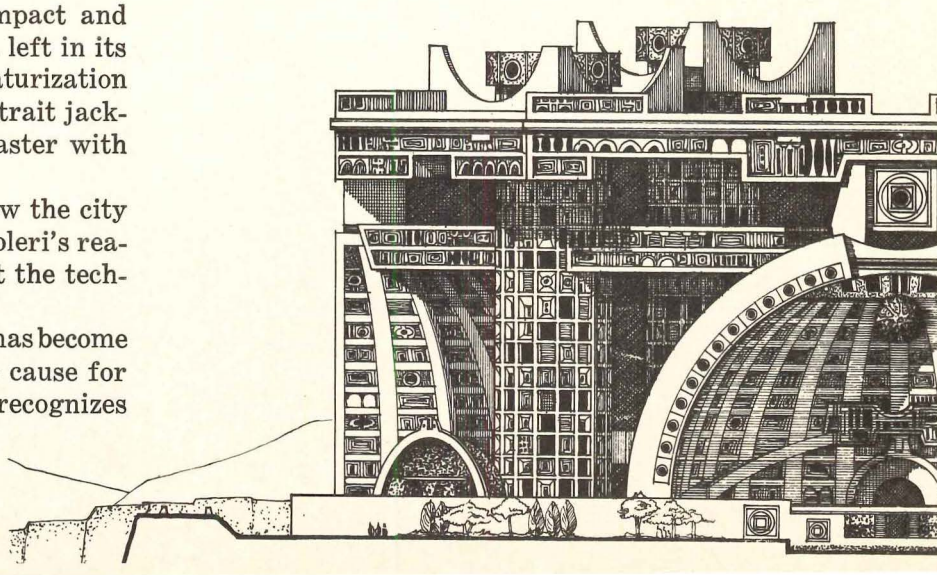
When the telephone system was initiated in the United States, women operators were needed to complete all calls. As the phone became popular, more and more operators were needed. Recognizing the economic problems involved in overexploiting the operator resource — women — the dial phone was developed. Further technological developments were required again as the resource was depleted prior to long distance direct-dialing. In each case the system was miniaturized, and technological complexity increased, freeing the human resource. If the system had not been able to adapt to expanding needs, eventually all the women in the United States would have been required 24 hours a day, and the species would have atrophied, or the system itself would have died.

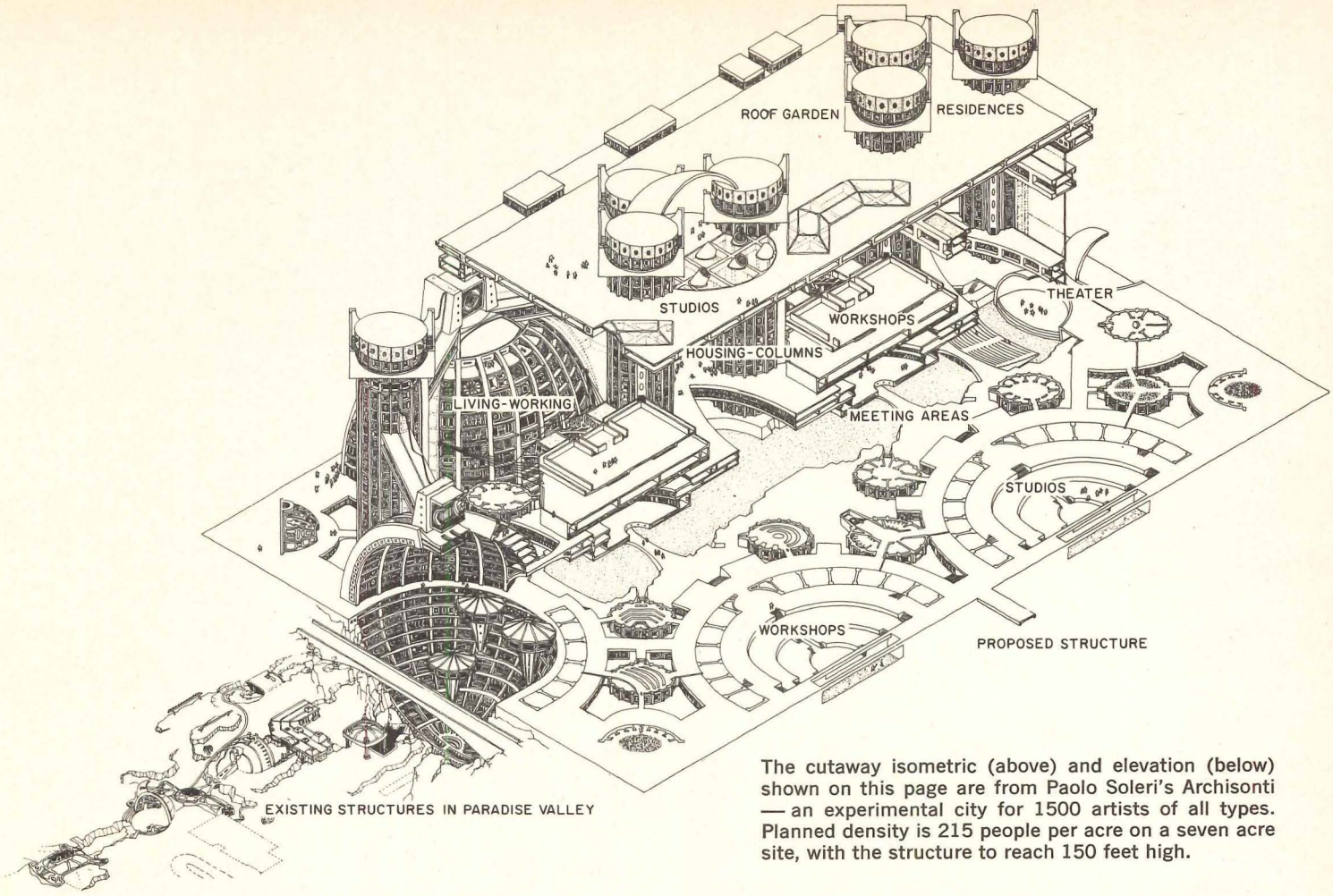
Those technologies survive that recognize and compensate for their pollutant capabilities. But unfortunately, most, like the automobile industry, do not recognize this capability. And, in the case of the automobile industry, not only does the technological-end-product produce pollutants, it becomes a pollutant itself, in the process wasting much precious energy. Or, as Soleri says, "It is 5000 pounds of metal using 6 gallons of poisonous fumes to transport 150 pounds of flesh who wants to buy one pack of cigarettes. That is absurd."

In Archisonti, the use of all resources will be maximized through miniaturization. But miniaturization requires a highly complex structure that must be construed to free, not limit, performance. In this sense, miniaturization can be equated to frugality, a quality Soleri says all men must come to accept.

Archisonti is the product of a radical consciousness. For, in order to save nature by packing men into highly compressed, complex organisms — the new city — radical new social forms must be evolved. What these forms might be fascinates Soleri. "We must test out Archisonti and find these new forms," he stresses.

This summer, students and other interested persons will gather in the Arizona desert to begin build-





The cutaway isometric (above) and elevation (below) shown on this page are from Paolo Soleri's Archisonti — an experimental city for 1500 artists of all types. Planned density is 215 people per acre on a seven acre site, with the structure to reach 150 feet high.

ing the first of a totally new generation of cities — cities that live with nature without destroying it.

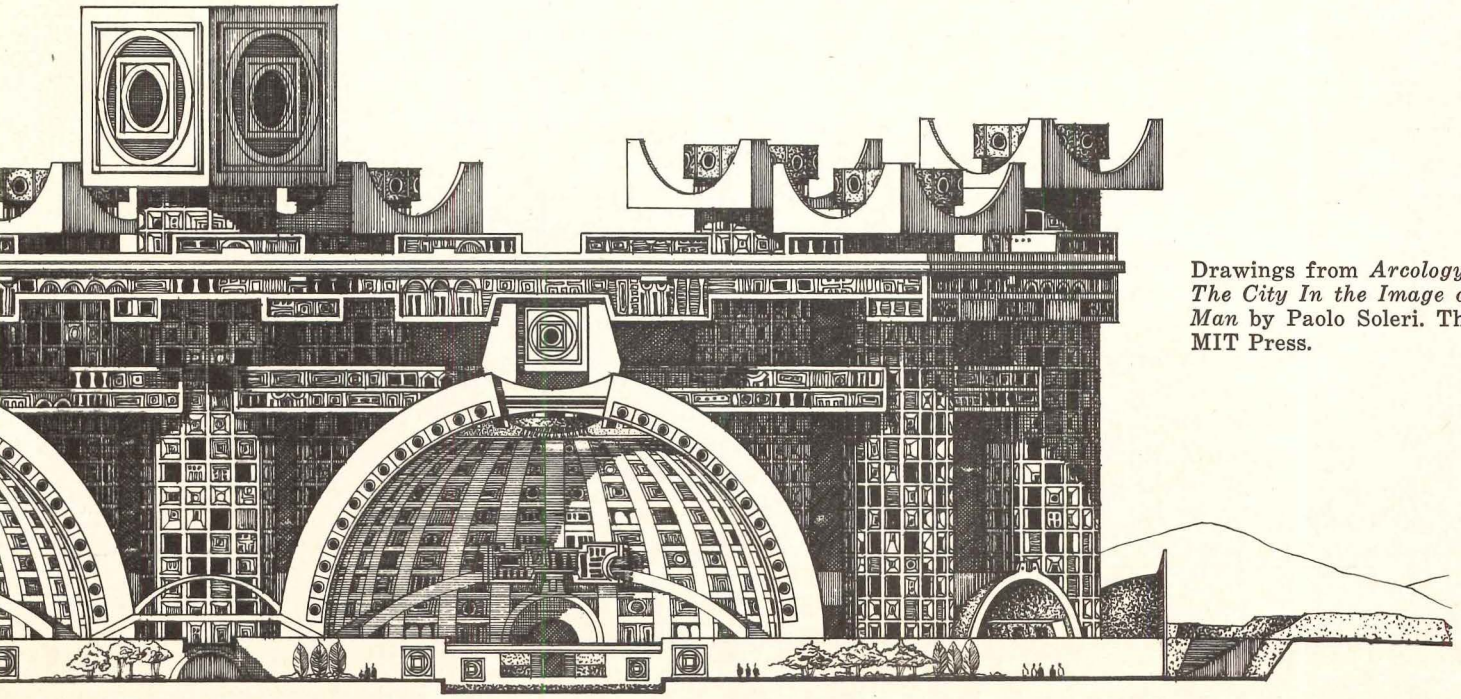
Ecotechnology and Decentralization

While many youths express a romantic tendency to return to the soil and the "simple" life, others, intent upon preserving beneficent, technological advances, and at the same time returning the world to Nature, envision an ecotechnology — a technology compatible with nature. They call for the harnessing of natural forces, such as tides, sun, and winds.

Fully realizing that within our present technological capabilities, concentrations of energy such as those needed to run major cities could not be achieved through ecotechnology, these young people see a need to decentralize (the opposite of Soleri) and spread the cities out over the landscape. In this way, extreme concentrations of energy would be unnecessary, and people could live closer to Nature.

They stress that this decentralization must be structured to use the land in the most efficient manner. Planning and zoning would be the means to this end. However, a radical part of the plan calls for the abolition of property ownership, which they view as a fundamental medium for land-exploitation.

Such an idea is obviously out of tune with our traditional ideal of individual ownership. Yet, it is just



Drawings from *Arcology: The City In the Image of Man* by Paolo Soleri. The MIT Press.

as obvious that each man cannot have his own two acres. The question is then, not which of these two ideals is most realistic at this time, but which is most realistic for all time.

Planning for Today, Today

While a long-range approach to total planning must be initiated quickly, the need for stop-gap area planning is pressing now. As an example of a good area plan we have chosen the Brandywine Plan, which originated at the University of Pennsylvania's Institute for Environmental Studies as a project for demonstrating an approach to open space preservation through regulations and the purchase of easement.

The Brandywine Today: The area of the project is the watershed of the Upper East Branch of Brandywine Creek. It is entirely within Chester County and includes parts of eight townships. The watershed covers 23,000 acres, or almost 37 square miles, and is about 12 miles long and 3½ miles wide at its widest point. It is within short commuting distance of Philadelphia, Wilmington, Reading, and Lancaster, Pennsylvania.

Today, the Upper East Branch is in remarkably fine condition — unpolluted air and water, a mixture of forests, fields and pastures, virgin hills and abundant wildlife. With a present population of 4200, only 3 percent of the land is covered with houses, barns, streets, and driveways. Yet it is on the verge of becoming part of Philadelphia's suburban sprawl. Estimates are that population will triple within 20 years and that within 50 years, 38,000 people will occupy approximately 12,000 homes on about 16,000 acres. Schools, shops, roads, and facilities will consume another 2000 acres. In other words, by the year 2020, about half of the land in the Upper Branch will be developed.

The first signs of growth already exist; two large subdivisions are nearing completion, nearby industrial parks are expanding, a 70-acre tract is being developed into a regional shopping center, and substantial housing construction is occurring on roadside lots sold off by farmers.

The Proposal: Without an integrated program, it is certain that future development will be destructive to the natural characteristics of the watershed. Planning for urbanization — including transportation, education, housing mix, commerce, and industry — should remain the responsibility of township, county, and regional planning agencies. However, since urbanization will inevitably affect water resources and natural amenities, a plan for their protection must necessarily influence urbanization plans. Since zoning is too easily changed to provide the guaranteed permanence necessary for this protection, the Brandywine Plan proposes a supplement to zoning. Specifically, the principles underlying the

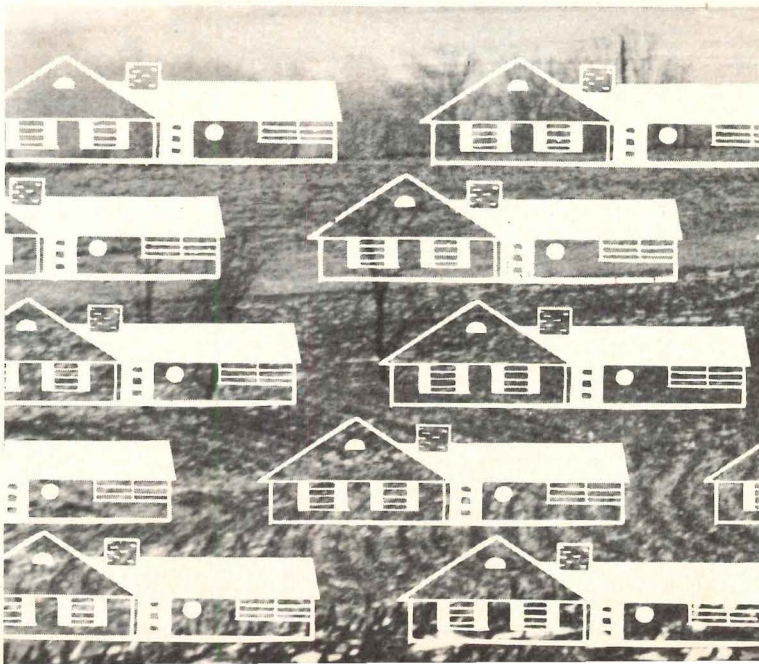


The well-cared-for countryside is within 35 miles of several metropolitan

proposals are: (1) maintain water supply, water quality, and natural amenities by preventing or limiting construction in flood plains, stream buffers, steep slopes, and forests, and regulate sewerage, drainage, and grading of development; (2) accommodate as many people as would locate there without the plan; (3) develop a plan that will be more economically beneficial than customary urban development; (4) buy permanent conservation easements on all areas critical to water resource protection, and compensate present residents fairly for any restrictions placed by the plan on their right to develop; (5) carry out the plan only if local endorsement is obtained.

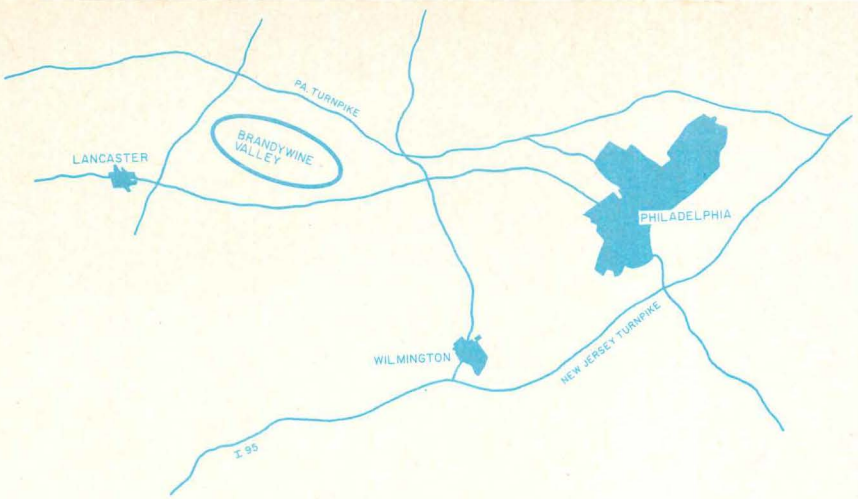
Planner's Recommendations: In the spring of 1968, the final plans were outlined. The backbone of the plan was the proposal that the Water Resources Authority hold land easements critical to the protection of water resources. Briefly, the recommendations were: (1) restrict further development from flood plains and from land within 300 ft of streams and their natural drainage networks; (2) limit maximum gross density of one dwelling unit per four acres to wooded areas and land with slopes greater than 14 percent, and limit maximum impervious cover to 2000 sq ft per lot; (3) begin long range planning for the design, financing, and construction of sewerage and water supply systems; (4) enact strong regulations governing the layout and construction of subdivisions, roads, and storm sewers, and the control

Without a plan, those qualities that attract new residents — tranquility,





Photos: Eileen Christelow



areas by commuter train and expressway.

of erosion and sediment damage during construction.

The following steps would be taken in order to carry out the plan: (1) as the basic element of the plan, establish a Water Resources Protection District that would include lands critical to stream and valley protection as outlined in the first recommendation; (2) purchase conservation easements from owners of land in the District who voluntarily agree to sell such easements. Also, it was emphasized that eminent domain would not be used and that funds for easement purchase would come from outside agencies rather than local governments. In June 1968, a booklet outlining the final recommendations was mailed to all watershed residents.

The Plan Rejected

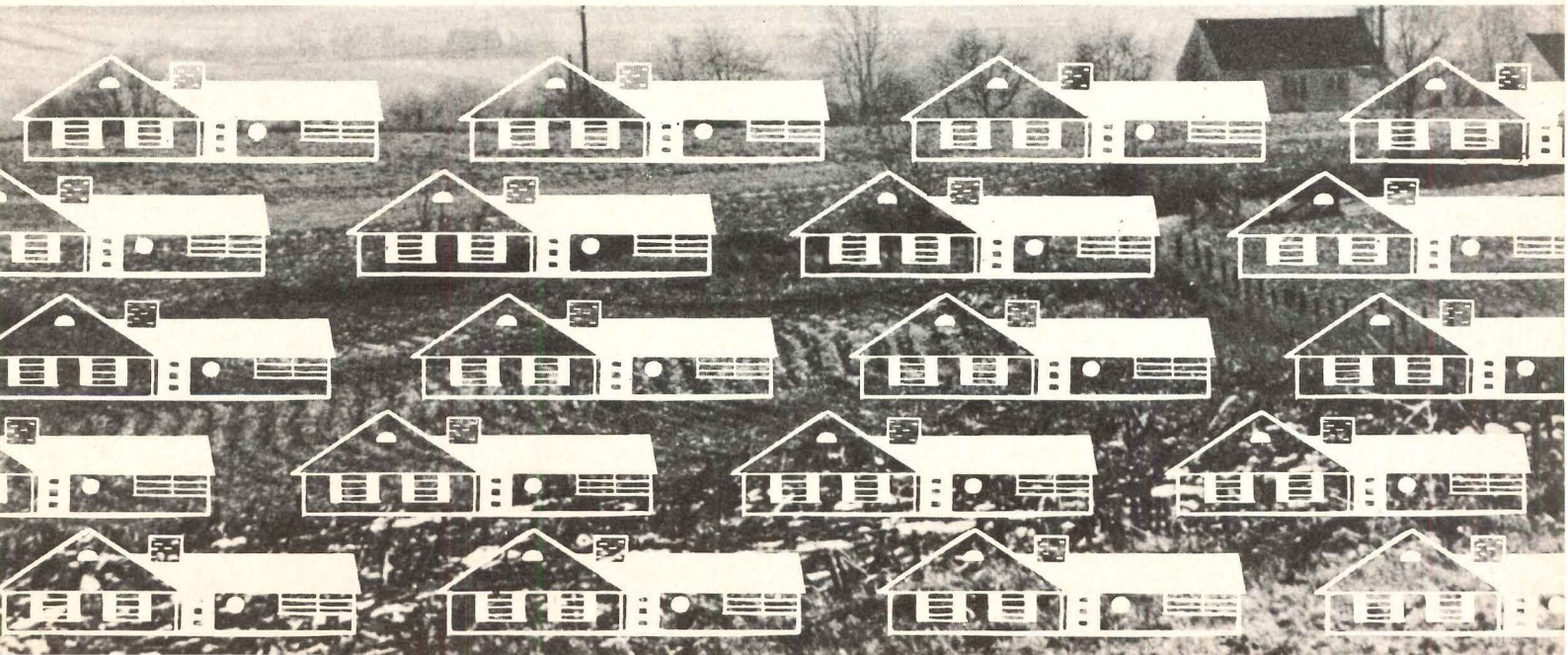
In midsummer, a series of public meetings (one for each township) was held to enable residents to express their opinions. After the meetings, the decision of whether to accept or reject the plan was put to the people. In the end, six townships voted against it and two for it.

Why was the plan rejected? Says Ann Louise Strong (director of the University of Pennsylvania's Institute for Environmental Studies), "Most people agreed that the over all objectives we proposed were desirable, but not the way of achieving them. When it came to the point where benefits were stacked against costs, people rejected the challenge." To understand why the plan was defeated, the planning staff conducted intensive interviews with a broad cross section of Brandywine residents. The reasons for the plans' rejection seem to lie in ingrained attitudes and values — a deep distrust of government, financial apprehensions, rejections of anything that seemed to threaten land values, and resistance to change.

Personality patterns: A major source of defeat lies in the predominant personality characteristics of residents. About two-thirds were raised in rural areas where their worlds were essentially tangible, predictable, and stable. Since their property was a reliable element in their lives, anything that threatened that property attacked a central element of their personalities. Many saw the plan's proponents as a threatening power structure. They viewed change as a threat, not an opportunity, and those who accepted the inevitability of change preferred to deal with it personally, on their own terms, rather than as a group member with common objectives.

The typical opponent of the plan lives tightly bound by the moral commands of the Protestant ethic. They denounce anyone whom they consider lazy, communally oriented, freethinking, or in any way "different." While they insist that they are not prejudiced, one of their major fears about the plan was that it might bring black Philadelphians into the area, either as residents of planned unit developments or as park users, although the plan did not include such developments or parks.

nature, openness — will be destroyed, and the valley will become yet another strip development and suburban sprawl.



Many felt that only people who share local values could be trusted to plan. One opponent, when asked what kind of a plan he thought people would support, suggested, "Set up a regional planning commission and let them get the University of Pennsylvania to act as a consultant. Then there would have been a feeling that local people were making the decisions and the University would be working for *us*." Another continued, "We resented outsiders coming in and telling us what to do."

The governmental threat: In the Brandywine, there is little concentration of power in the hands of either individuals or groups, and those who do hold political positions — mostly nonsalaried, part-time positions — have little influence. Their role is that of caretaker; they feel that government decisions should be made at the lowest possible level, and hold that "a government which governs least, governs best." Typical is the way the county commissioners passed the responsibility for the Brandywine decision to township supervisors, who in turn passed it to the individual landowners. It was virtually impossible to fully explain the proposals and impact of the plan to each of the 1400 decision making landowners. Although considered participatory government, those participating were primarily opponents, with a few proponents and "middle-of-the-roaders," and none of the future population who might some day reside in the valley.

Residents held a deep distrust of the government and claimed they were not being told the "real" purpose behind the plan. "The whole point of the project was not an interest in conservation," a resident explains, "but rather in establishing the government's right to make restrictions without buying land." People wanted to know who really would pay for the project. They felt that the "Madison Avenue-type" brochure mailed by the planning staff to residents, was too fancy and conjectured that those working for the project did so for economic gain.

Most residents considerably underestimated the legal powers held by government to control land development for public purposes, and could not accept the fact that township supervisors had the right to limit the ways in which landowners used their land. To these people, ownership is an absolute right to do with the land as they wish, and anything diminishing that right is probably unconstitutional. Explains one landowner, "It was a basic threat to the right of ownership. A lot of us opposed the plan because it was putting control of private property into the hands of nonelected officials." Another resident sums it up: "The proposal was an impingement on constitutional rights. In some cases the easements would destroy private property rights and restrict the management of 40 to 50 percent of the land in political subdivisions. If that much land is restricted and if the government has control, that's socialism. You can't have that degree of management in a democratic society."

Many residents saw conservation easements only as a form of joint ownership of land with the government — to them a most unacceptable arrangement.

The economic threat: Land ownership in the valley is concentrated in the hands of relatively few, with only 20 percent of the landowners holding over 80 percent of the acreage. Many hoped to profit from land speculation, as one opponent explains, "The turning point was the people's greed instincts. People are more willing to listen to the argument when they must be altruistic. But when you put their economic self-interest on the line, they become greedy. They want to make as much money as possible and don't care what happens after that."

Many landowners did not want conservation restrictions placed on their property because, as one put it, "No one would buy land that has an easement on even part of it." The planners could not convince residents that the unique protection provided by the plan would, in fact, increase the marketability of their land. Many were concerned that property subject to easement restrictions might discourage bankers from accepting it as security for a mortgage, despite assurances from local bankers that they would treat such property exactly as any other land.

Many residents expressed concern over how the plan would affect their real estate taxes, and argued that land, which could not be developed because of easement restrictions, would continue to be taxed as if it could. Despite assurances that county assessors would not change the present assessed value of undeveloped land, residents could not be convinced otherwise. Strong and John Keene, both principle researchers of the plan, suggest that this concern may be the result of misunderstanding tax assessors' procedures or a general mistrust of tax agents, or both.

Although the planners argued each of these points as persuasively as possible, residents could not dissolve general suspicions, the earlier threat of eminent domain, and preconceived ideas of the "real" purpose behind the plan. The extent of the confusion is suggested in one landowner's statement obtained after the plan was defeated: "The plan would have decreased land value, made it difficult to borrow from the bank, and affected taxes. It was a beautiful plan that took everything into consideration except human needs."

"Anti" organizations: Another source of defeat was a handful of active social groups whose purpose was to oppose any action that "threatened" their area. One group, the Chester County Freeholders Association, was formed specifically to prevent approval and implementation of the Brandywine Plan. Demanding the right to profit from their land as they wished, they sometimes disrupted public meetings and denounced the proposals as "communist-inspired power grabs." By playing on such commonly held attitudes as individualism, free enterprise, opposition to change, suspicion of outsiders, opposition to

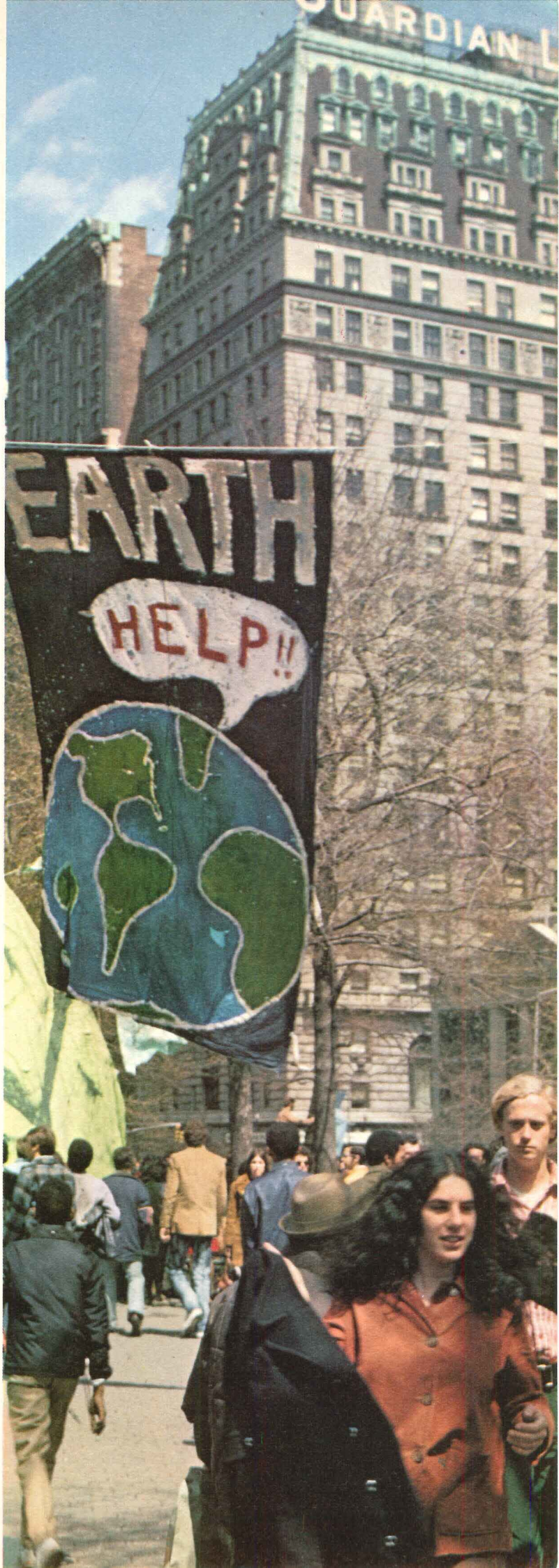
government, and, above all else, fear when dealing with external forces shaping their personal fate — they emerged as gallant crusaders out to destroy the threat of socialism (conservation easements), totalitarianism (a government-sponsored program backed by the use of eminent domain), and big business (the alleged scheme of the DuPont Company, located in the valley, to use the proposals to get clean water for their plant). For those advocates of the plan, it was not worth the personal abuse — they felt isolated, ineffective, and tended to follow their neighbors' commitment.

Aesthetic-Ecology Works

While these attitudes and values of the Brandywine citizens may seem typical of those held by residents of rural-urban fringes in other parts of the country, conservation easements have been used successfully. The marshes and bottom lands of the Sudbury and Concord Rivers outside of Boston, for example, have had easements prohibiting building, filling, or dumping on the flood plains, marshes, and wetlands for several years. As a result, land value has increased. Another successful easement program protects the motorist's view of the Mississippi River along Wisconsin's Great River Road. During the past eighteen years, the state has been buying scenic easements, and prohibiting signs, billboards, dumping, tree cutting, commercial development, and dense residential development. One of the most outstanding examples is the Mill Creek Valley Conservation Agreement. Owners of land along more than five miles of Mill Creek in Montgomery County, Maryland, decided over thirty years ago that they would have to join together if they were to protect the unusually beautiful creek valley. They entered into a conservation agreement with the township that prevented tree cutting and building within at least 100 feet of the creek. The agreement is still in force, with the result that the valley is in its natural condition even though it is across the river from the city of Philadelphia and in the heart of one of the most urbanized areas in the county.

While each of these examples represents an important ecological breakthrough, the underlying motivations are generally aesthetic ones, with lifesaving side effects. However, if we are to depend upon man's aesthetic sensibilities in order to remain alive, then our existence is certainly jeopardized. Aesthetic-ecology is not a powerful enough or universal enough rallying symbol. Life is. If we were to rally around life as motivation for ecological action, aesthetics would follow naturally, allowing us all to live beautifully.

— Don Raney — Chet Mantolesky



The April 22, 1970 celebration of Earth Day. How many more earth days will be necessary to spur men to action; how many more will be possible? Photo: Don Raney



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Noncombustible Construction and Materials

Criteria for noncombustibility, as set forth in the various building codes in use throughout this country, are reviewed by the Chief Specifications Writer of Skidmore, Owings & Merrill, New York.

The term noncombustible sounds like an absolute condition. But is it? It depends on whether it is classified by the dictionary definition or whether it is classified by the particular building code that governs in a specific locality. And they can differ somewhat.

In building construction, the architect is involved with the definition since a specific material or construction assembly may or may not be noncombustible, depending upon the local building code definition. Prior to the advent of manmade materials, the distinction between combustible and noncombustible materials was quite finite. Stone, brick, and tile simply do not ignite, whereas wood products used in construction do.

With the introduction of manmade materials, we now have materials and construction assemblies that may be on the borderline between combustible and noncombustible. In addition, a degree of combustibility might be acceptable if the amount of fuel contributed by these materials was insignificant. As a matter of fact, some of our national building codes recognize the existence of these borderline cases and the language of the codes reflects the acceptance of some of these conditions.

The National Fire Protection Association's definition of noncombustibility appears in NFPA No. 220 "Standard Types of Building Construction" and some of this language is reflected in the National Building Code, the Southern Building Code, the Uniform Building Code, and the BOCA code, but not quite uniformly. The following is the NFPA definition of noncombustibility.

"For some of the types of building construction classified in this standard, certain elements of a building are required to be of noncombustible material or noncombustible construction. For many years there were only a few building materials that would qualify for such use. Materials such as steel, iron, brick, tile, concrete, slate, asbestos, glass, and plasters were the most commonly used. These materials will not ignite and burn when subjected to fire, hence the phrase noncombustible material, by tradition, has been associated with these materials. In recent years, however, many building materials have been developed which, although not noncombustible in accordance with the traditional use of the term, are nevertheless suitable for use in building elements required to be of noncombustible material.

"It is therefore suggested that wherever the standard for classification of building types refers to the use of noncombustible material or noncombustible construction, material which, in the form in which it is used, falls in one of the following groups (a) through (c) be accepted. No material shall be classed as noncombustible which is subject to increase in combustibility or flame spread rating beyond the limits herein established, through the effects of age, moisture, or other atmospheric condition. Flame spread rating as used herein refers to ratings obtained according to the 'Method of Test of Surface Burning Characteristics of Building Materials' NFPA No. 255; UL No. 723; ASTM E84.

(a) Materials no part of which will ignite and burn when subjected to fire.

(b) Materials having a structural base of noncombustible material, as defined in (a), with a surfacing not over ⅛ in. thick which has a flame spread rating not higher than 50.

(c) Materials, other than as described in (a) or (b), having a surface flame spread rating not higher than 25 without evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material in any way would not have a flame spread rating higher than 25 without evidence of continued progressive combustion."

In addition to the NFPA definition of noncombustibility, several national codes include an ASTM definition or modifications of the definition in their requirements. The ASTM definition appears in ASTM E176 as follows: "Noncombustibility. The property of a material to withstand high temperature without ignition. As applied to elementary materials of which building materials are composed, it shall be measured by the methods and criteria defined in ASTM E136."

ASTM E136 sets forth a test method for determining the noncombustibility of building materials wherein samples are subjected to air temperatures of 1382 F in a furnace:

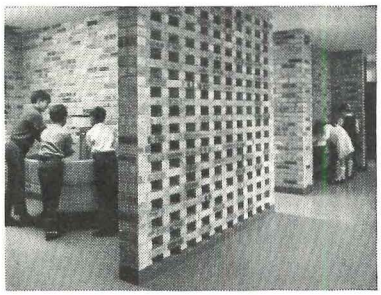
"Materials subjected to the test described shall be reported as noncombustible if . . . the recorded temperatures of the surface (of the sample) do not at any time during the test rise to more than 54 F above the furnace air temperature at the beginning of the test and, if there is no flaming from the specimen after the first 30 seconds."

If we now review the four national codes as they relate to the NFPA 220 definition and the ASTM E136 test criteria for noncombustibility, we find the following:

NFPA	*SBC*	*BOCA*	*UBC*	*NBC*
(a) No ignition	ASTM E136	ASTM E136	ASTM E136	ASTM E136*
(b) Flame Spread 50	25	50	50	50
(c) Flame Spread 25	25	25	—	25

*The modification does not permit liberation of any flammable gas.

The reader will note that there are variations in the codes and in the definitions. Obviously, there are materials that are completely noncombustible but there are also some materials, that contribute fuel in such insignificant amounts that their use would not be prohibitive.





Twin suburban schools "made to order" for Pre-teen education



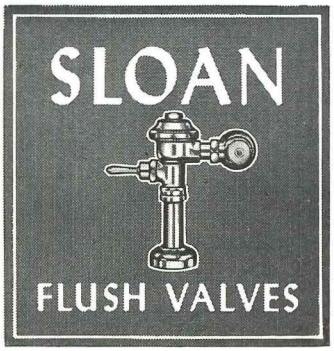
ARCHITECTS, *O'Donnell Wicklund Pigozzi, Architects, Inc.* · MECHANICAL ENGINEERS, *William T. Brookman & Associates*
PLUMBING CONTRACTOR, *Di Pietro Plumbing Corp.* · PLUMBING WHOLESALER, *Miller Supply Company* · FIXTURE MANUFACTURER, *American Standard*

■ Two new elementary schools, serving pupils from kindergarten through sixth grade, now offer the utmost in modern learning facilities in Chicago's suburban Deerfield.

Named Briarwood and Cadwell, the two schools have identical "core" facilities that include an all-purpose room, center for instructional materials, facilities for pupil-personnel services and offices. Two classroom wings, each with a distinctive look, project from the central core.

Briarwood School accommodates 375 pupils with 11 classrooms and two kindergarten rooms. Cadwell School (shown) accommodates 400 pupils with 12 classrooms and two kindergarten rooms. Future expansion to 20 classrooms is possible at both Briarwood and Cadwell.

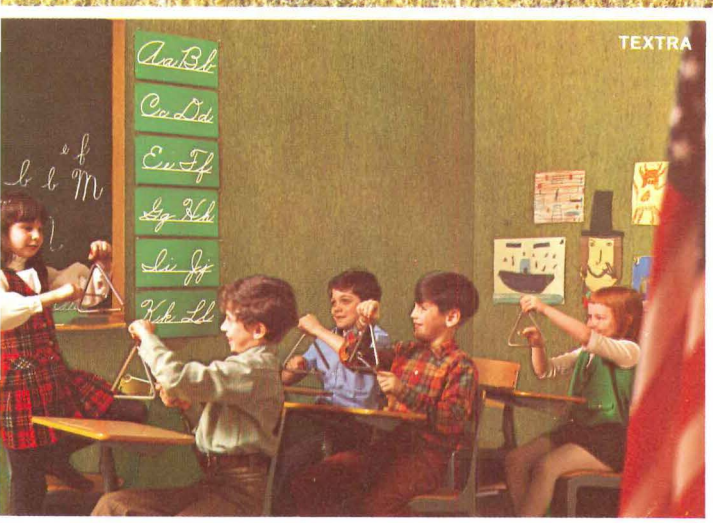
The buildings are steel frame, cavity wall construction, slab on grade, with a gypsum roof deck. Main exterior material is brick which carries inside and combines with painted concrete block partitions in the classrooms. All fixtures and facilities were carefully chosen on the basis of esthetic and practical considerations. Thus all sanitary fixtures, closet bowls, urinals and service sinks are equipped with Sloan Quiet Flush II Flush Valves, selected for their acknowledged quality, quietness, dependability and low maintenance costs. Sloan flush valves are recognized as a mark of excellence in any building. To be sure your new building has this same Sloan quality your architect-engineer should specify and insist on Sloan Quiet Flush II Flush Valves.



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The Bauhaus: Weimar Dessau Berlin Chicago

By Hans Maria Wingler

MIT Press, Cambridge, Mass. 1969. 653 pp., illus. $55.00

Reviewed by F. Lanier Graham. *The reviewer is Associate Curator of Architecture and Design at The Museum of Modern Art, New York. His most recent exhibition catalogue,* Hector Guimard, *will be followed this winter by* Hector Guimard (1867–1942): A Critical Study.

Few if any institutions have had a more seminal influence on the architecture and design of our time than the Bauhaus. As it developed from the mystical Expressionism of postwar Germany in 1919, the firm leadership of Gropius and Mohly-Nagy gradually guided the student body of this extraordinary school into grappling with the central problem that had eluded earlier progressive design movements. The disciples of William Morris and the Arts-and-Crafts Movement were also inspired by a broadly social humanism and a profound concern for quality. But their stylistic innovations never progressed beyond neo-Gothicism. Art Nouveau, with similar ideals, was strong enough to break with the Historicist tradition, and self-consciously create a new style of and for its own time. But the fruits of its labors were also limited to a wealthy minority. Both movements were reactionary to the degree that they rejected the primary fact of modern economy — the machine.

Among isolated architects and designers, between the end of Art Nouveau and the beginning of World War I, the realization developed that the machine was not necessarily the enemy of man's well-being, that indeed only through harnessing the machine's potential could products of quality reach every level of society, and that the machine could be used as effectively as any other tool. The excellence of a mass-produced object can be as high as that of a handmade object, so long as one learns to control the production process.

An aesthetic "sea-change" of major significance was taking place as a nineteenth-century romanticism of the natural was displaced by a twentieth-century romanticism of the mechanical.

But it was not until the founding of the Bauhaus that this positive approach to industrial production was planned and used as the basis of a new system of practical education. The motivating ideal was nothing less than a closing of the profound ruptures in the fabric of society started by the Industrial Revolution; an opening of communications between commercially progressive manufacturers and increasingly isolated artist-craftsmen, between innovative engineers and retrospective architects; a reconciliation between man and his manmade environment.

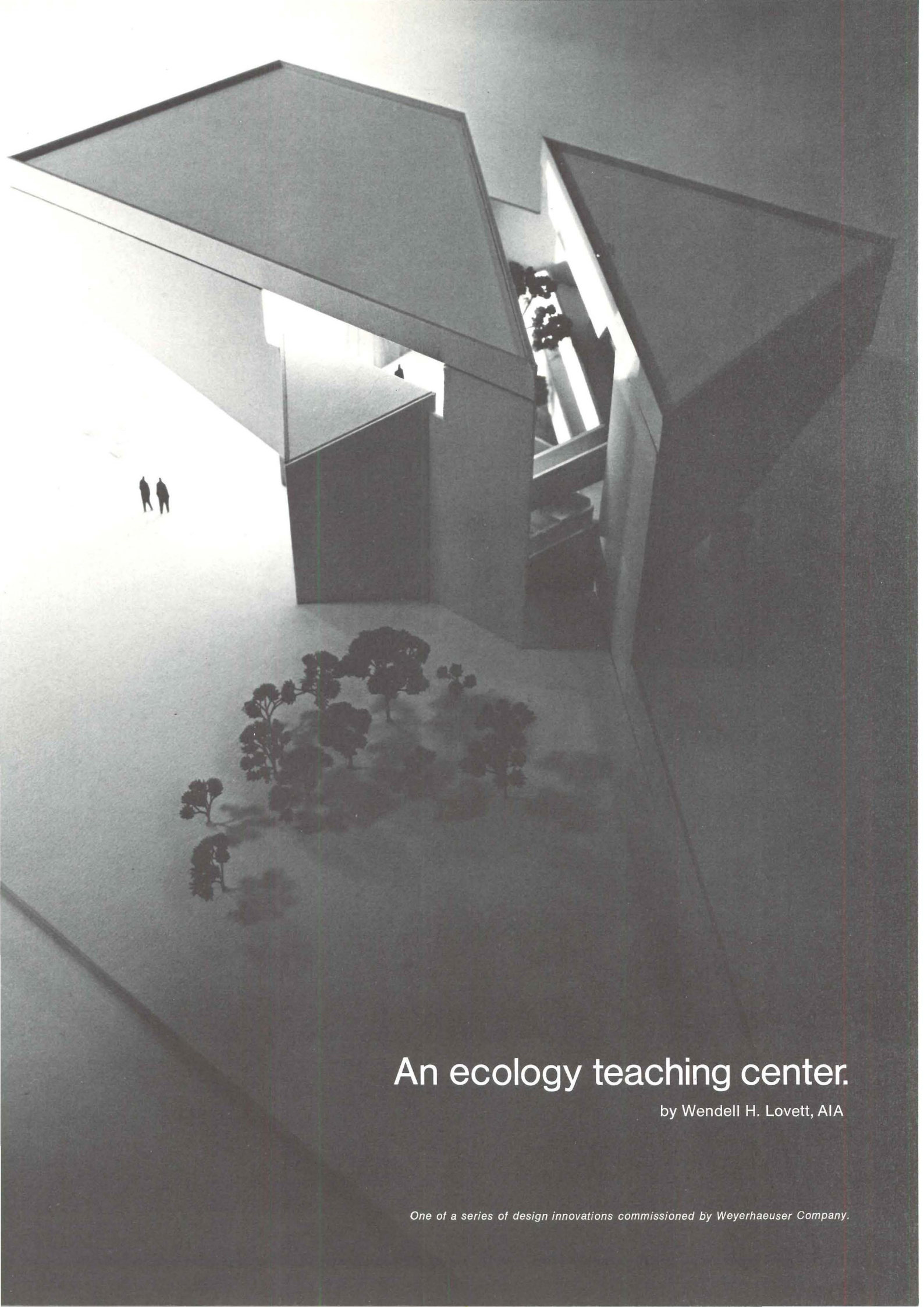
The international student body was trained simultaneously by artists and craftsmen in a program that embraced everything visual, everything material, everything spiritual, and particularly, every possible interrelationship between them. The teachers' emphasis was first on finding a functional solution to a design problem, then on working out the clearest form to express that solution. Architects and industrial designers taught not "beauty" but the articulation of working parts in the simplest, least expensive way possible with contemporary materials. Artists taught not "art" but the free imaginative manipulation of forms. Craftsmen taught not "virtuosity" but the attitude of care and the technique of crisp detailing.

As the students began to put the generalized social ideals of economy, efficiency, simplicity, and clarity into practice, they drew upon the constant formal principles already developed by Cubism, Constructivism, and de Stijl, generating a body of geometrically oriented aesthetics they felt was appropriate to the precise

(Continued on page 198)



Iwao Yamawaki: the end of the Dessau Bauhaus. Collage. 1932.



An ecology teaching center.

by Wendell H. Lovett, AIA

One of a series of design innovations commissioned by Weyerhaeuser Company.



Weyerhaeuser Company has commissioned a number of leading architectural firms to create design innovations highlighting the potential of wood in public and commercial buildings. This original design by Wendell H. Lovett, AIA, of Bellevue, Washington, is the twenty-first in the series.

The world is just now beginning to respond to the fact that our earth is a finite resource. In this ecology teaching center, people could learn about the world they must share. They could gather for a common purpose: to understand the interdependence of all things in our environment.

Natural light (the sustenance of life) enters the 4-level building directly above the indoor garden and stair area. Internal volumes for a variety of activities are bright, airy spaces defined by planes of natural wood paneling and doors.

The space in the first and second levels is for receptions, meetings and exhibitions. On the third level is the principal lecture space. The uppermost level (an isosceles triangle in the plan) provides a smaller seminar space that functions as an acoustically isolated room or as an addition to the major space.

Wood flake solid core doors with flush face veneers (upper part of illustration) are suspended between ceiling and floor, hinged accordion fashion to provide the desired flexibility.
To define the main teaching area, we have used architectural hardwood paneling with veneers that match the doors.

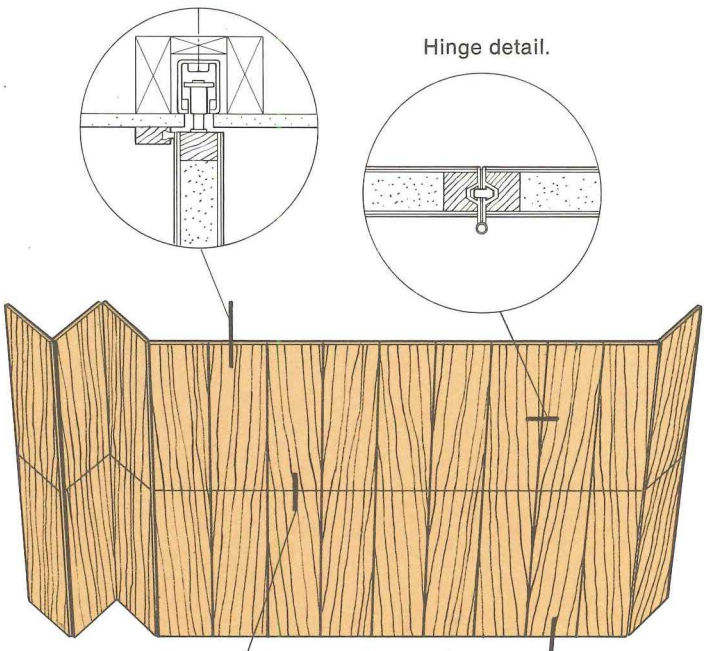
The strong geometry of the enclosure, the focus of natural light, the organic forms of plants and the grain of natural wood combine to provide an appropriate setting for the study of ecology.

Wendell H. Lovett

Weyerhaeuser Roddis Doors hinged accordion fashion run on a continuous ceiling guide and floor track system. These are 1¾" wood flake core doors with matching veneers on both sides.

Ceiling guide.

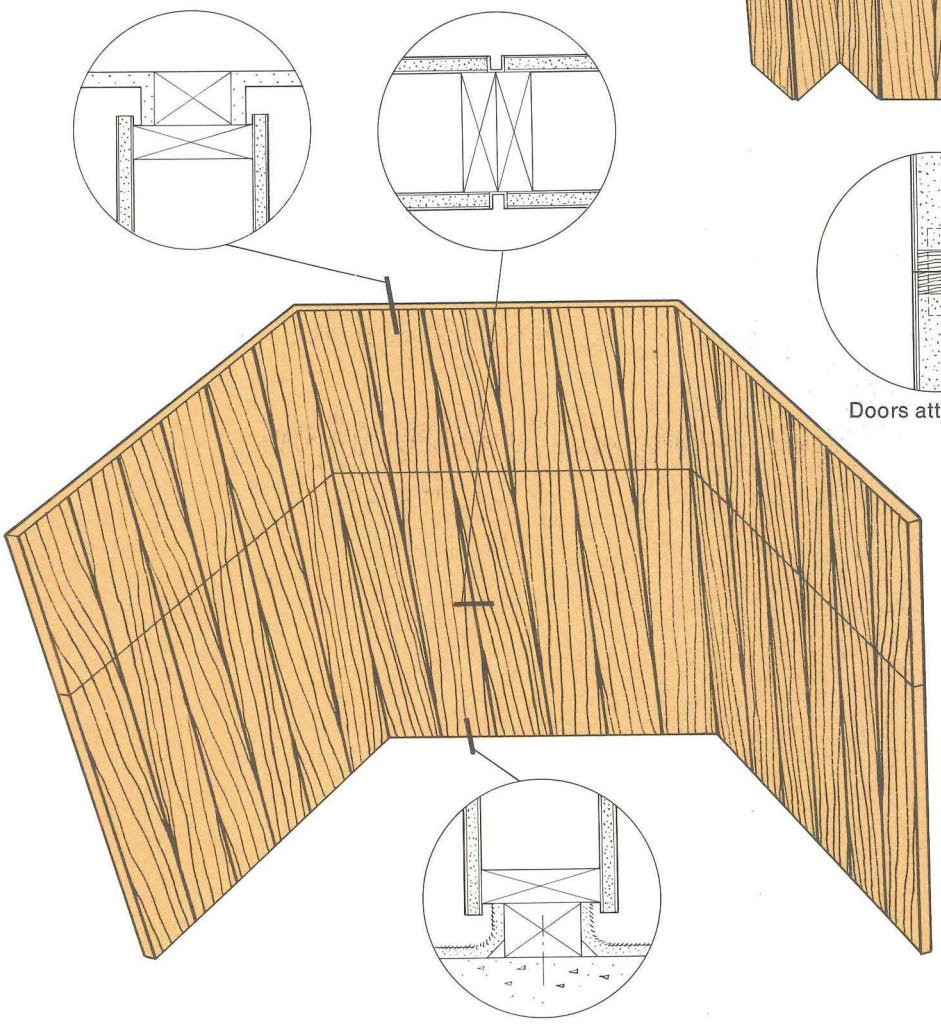
Hinge detail.



Weyerhaeuser ¾" architectural sequence-matched paneling—rift cut red oak. Vertical anodized aluminum channels separate the wood panels.

Ceiling attachment.

Paneling attachment.



Doors attachment.

Track system.

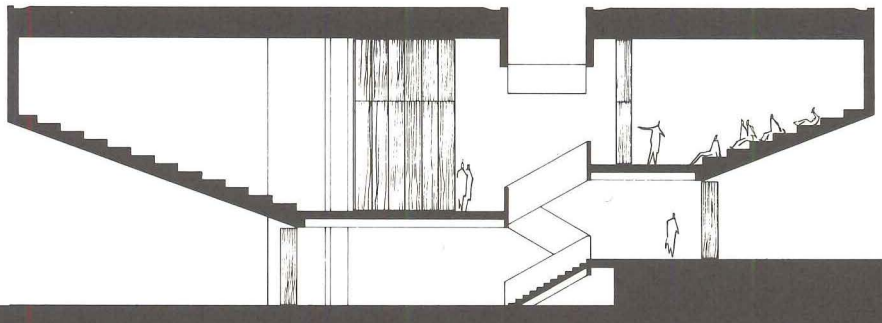
Floor attachment.

The most obvious design for an ecology center, particularly one commissioned by a wood products company, is a natural wood structure that symbolizes nature en toto. We applaud Wendell Lovett for his restraint. The hard-edge exterior and interior shapes, the use of smooth surface planes and the neutrality of whiteness for the interior walls all express the presence of man. Amidst all this background of man-symbol, one is pleasantly relieved to find the color and forms of nature—in the grain of wood, garden plantings and natural light. The honesty of this design recalls the nexus of ecology. The interdependence of things. The living together of man and nature.

To make our products more useful to you, Weyerhaeuser maintains a nationwide network of specialists who offer the most comprehensive body of technical data available from a single source in the wood products industry.

For more information on Weyerhaeuser doors and paneling, call on your Weyerhaeuser Architectural Representative. Or write to Box B-7106, Tacoma, Washington 98401.

(On reader service card: Circle No. 308.)



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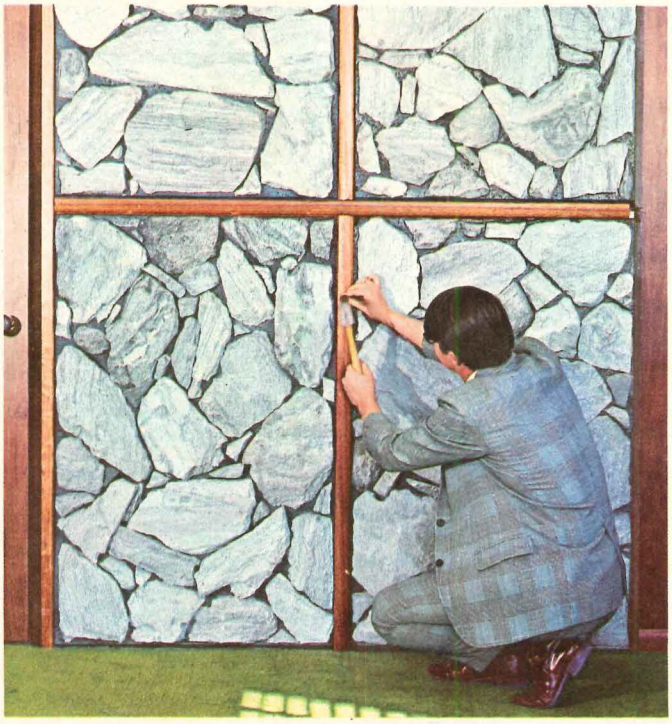
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El Chico Restaurant, Fort Worth, Texas–Sawed face charcoal veneer.

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Finger tip opening... No gut busters!

The Stubborn Dutchman—Too stubborn to build anything but the best walk-in

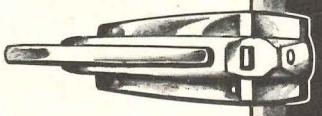


C. Schmidt walk-ins are specified by leading food consultants and architects. These fine coolers and freezers are built to last as long as the structure.

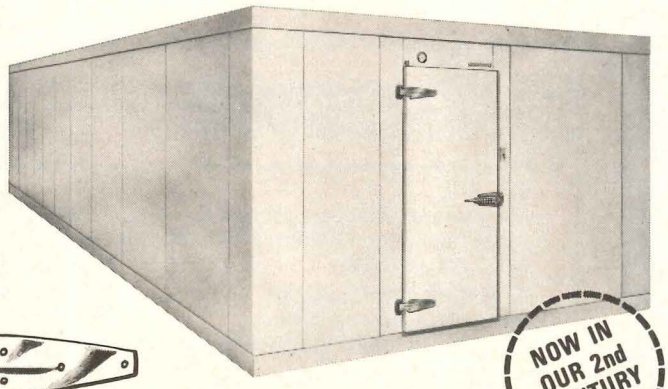
Typical of this fine craftsmanship are the doors. People leave heavy doors open. A heavy door can cause other walk-in problems. Result: Excess moisture. Poor refrigeration. More operating costs.

Schmidt walk-ins have doors designed after lengthy research. Finger tip opening and closing. Heater cable are built around door perimeter and jamb. This prevents moisture and frost. Keeps vinyl gaskets warm and pliable for a tighter seal. There are heater cables even under the steel sill.

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Schmidt "those Stubborn Dutchmen"

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(Continued from page 192)

character of mechanical production. By 1923 a recognizable "Bauhaus style" had emerged. An attraction for the mathematical perfection of the circle, square, and rectangle had disciplined the naturally fluid, irregular curvilinearity of Art Nouveau, and the emotionally charged plasticity of Expressionism.

Of more significance than the formal character of the "Bauhaus style" is the fact that its practitioners (like the pioneering painters and sculptors before them) had learned to think and design abstractly. They had decided to derive the shape of their artifacts from their experience of new processes of production and a modern sense of form, which no longer depended on reference to the familiar catalogue of styles developed before the Industrial Revolution that had sustained their nineteenth-century ancestors. Moreover, the breadth of their perspective was such that they thought of every ashtray, radiator pipe, and plane of space as part of a unified living experience. At a new level of abstraction, they deliberately laid the basis for a modern *Gesamtkunst* — a total work of art.

The Bauhaus, of course, did not succeed in solving all the problems with which it was concerned. Its historical importance lies in the fact that it confronted these problems, focused on their magnitude, made a heroic effort toward solving them, and in the process developed an approach that changed the face of the world.

In their enthusiasm for bringing together commercial success and social concern, consumer goods and a new kind of formal quality, the Bauhaus may be said to have developed an over-orientation towards the object as a fixed end-state in a closed system. Design theory has advanced beyond that position toward viewing an object as a movable point within an open-ended system. Eventually, we will be able to replace all those machines that churn out unasked-for *objets d'art* like an unwelcome horn-of-plenty with machines that produce whatever we ask for on demand, either as part of a flexible system suitable for many, or as an individually requested rarity.

In the meantime, of all the modern artifacts in which we place ourselves and our accessories, most of that which is simple and rich (and perhaps more of that which is simplistic

(Continued on page 208)

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Valarie Lewis is a Lab Technician. She'll never give a damn about hinges...



Until one doesn't work!

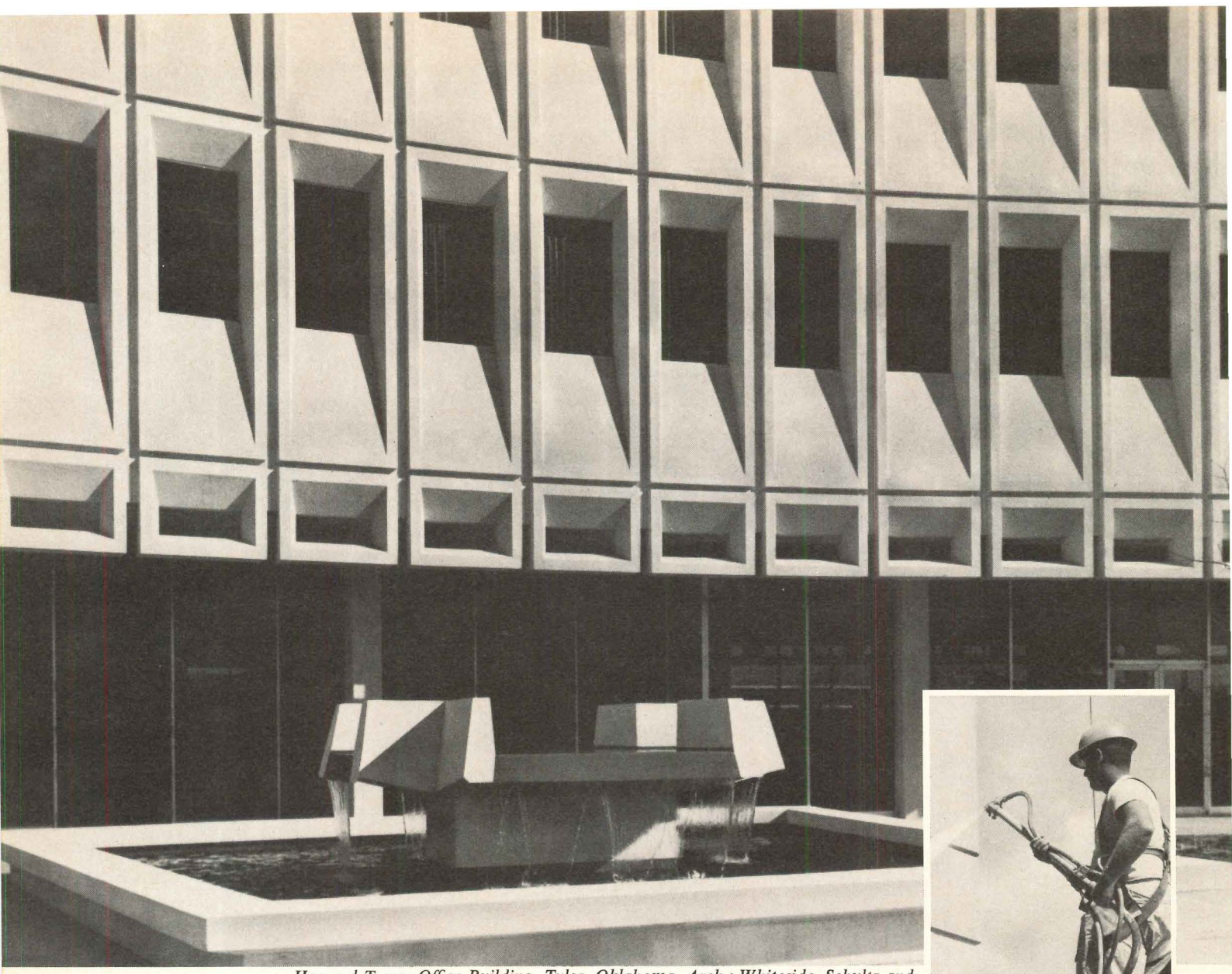
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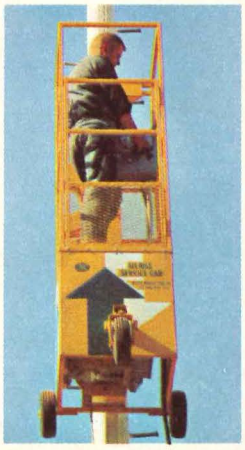
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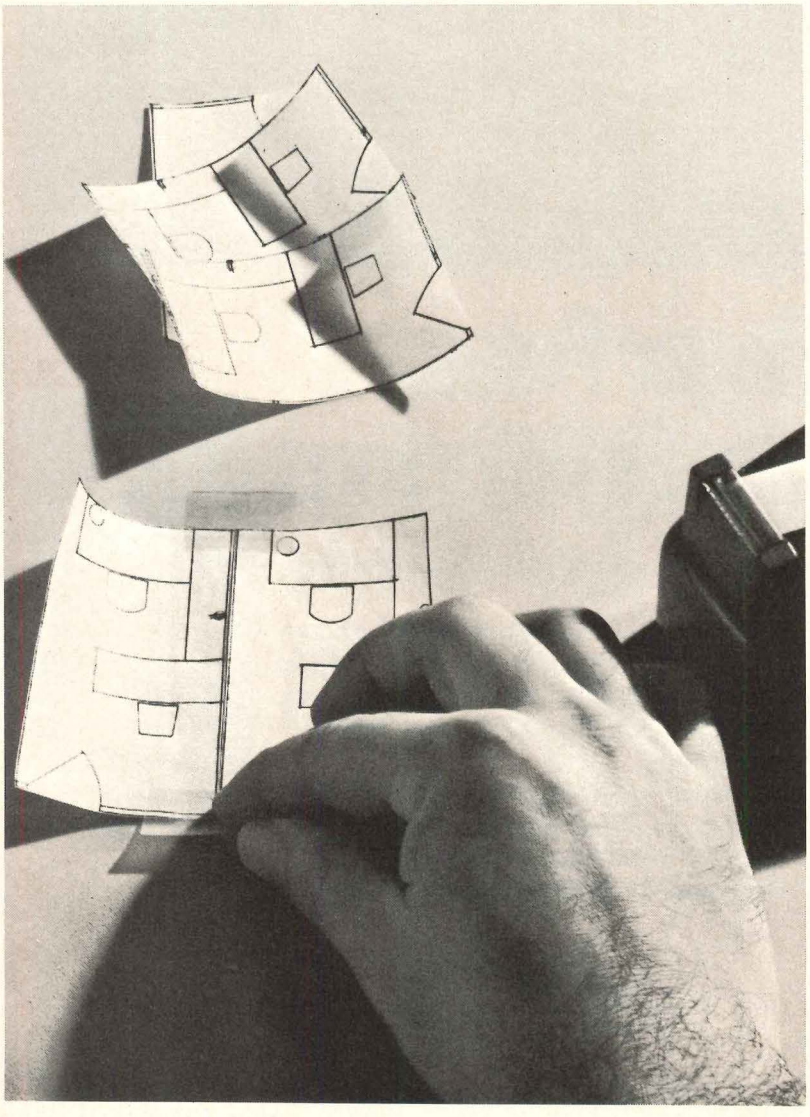
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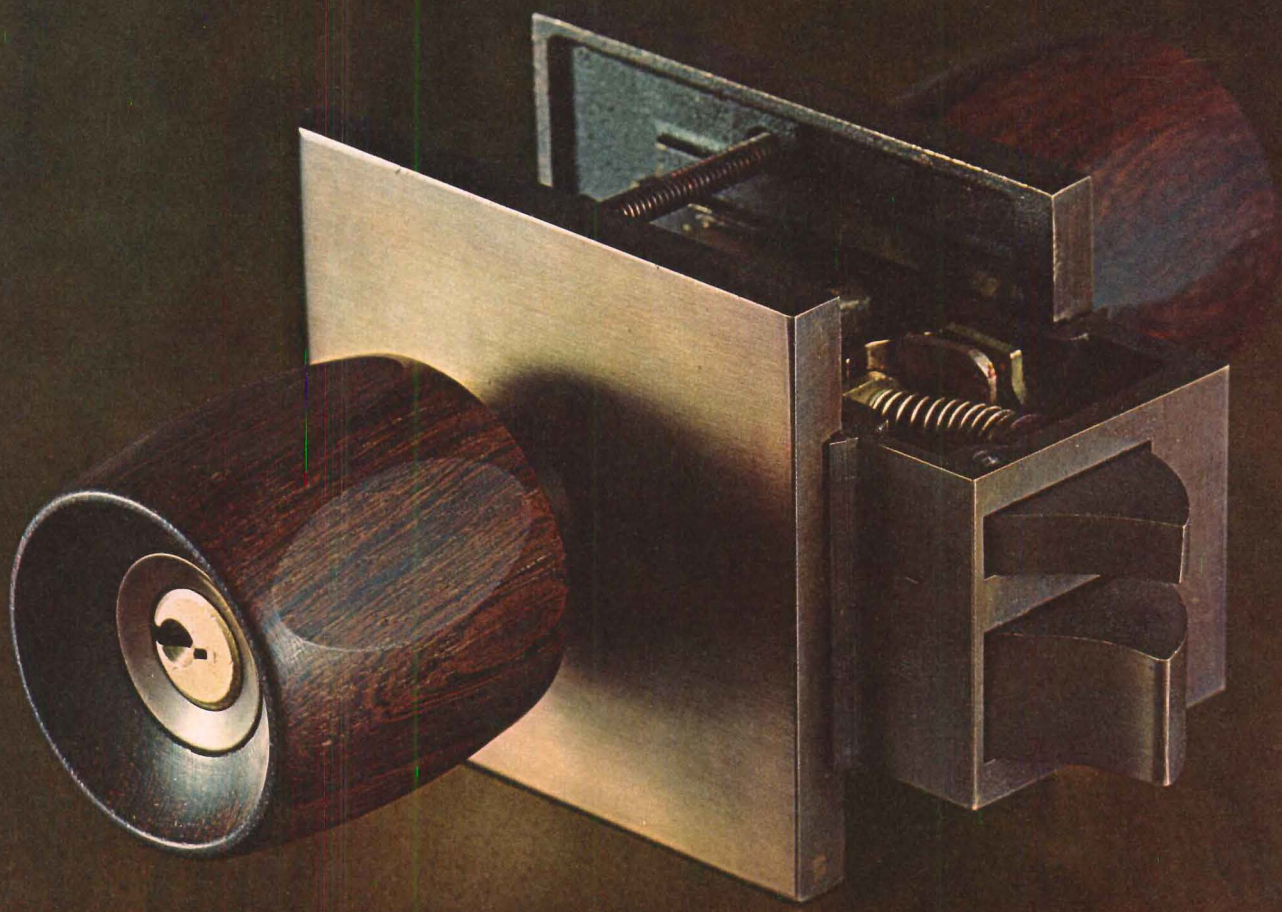
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Architect:
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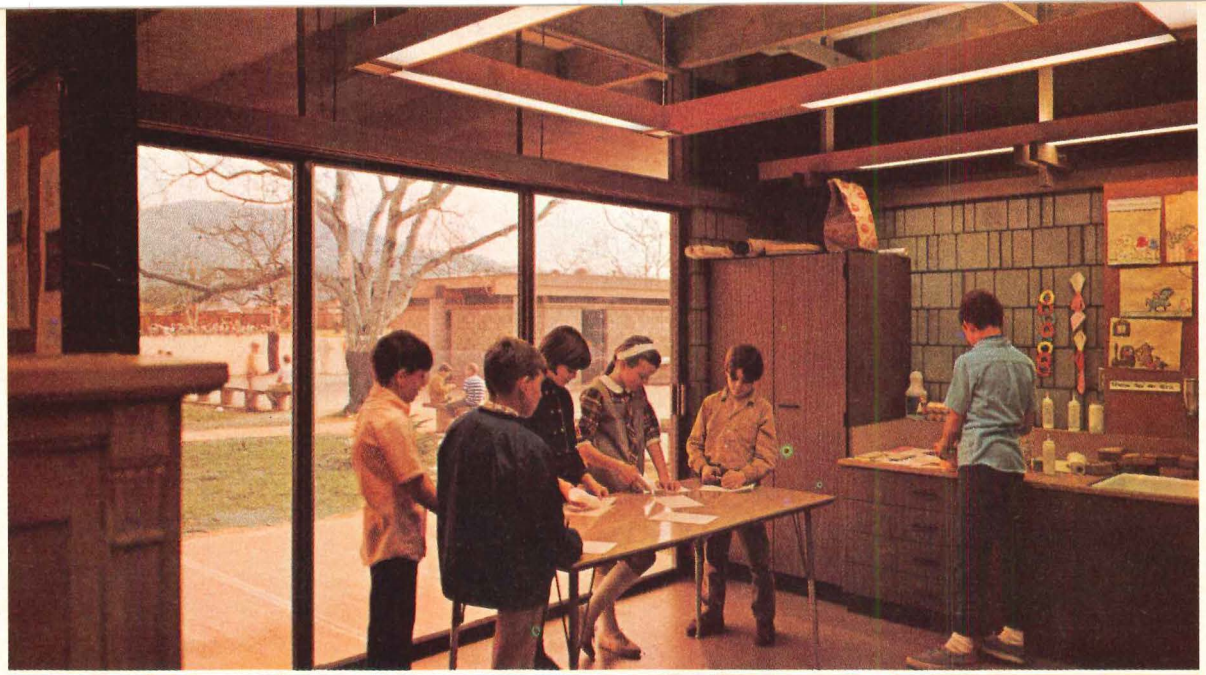
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GAF Floor Products
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Architects: Frederick Confer & Associates, Concord, Calif.

Breakage resistance and safety

PLEXI

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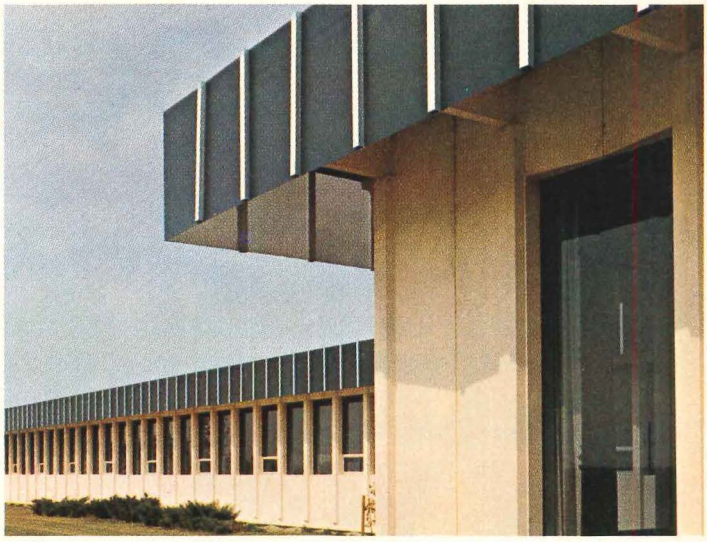


Castle Rock School, Walnut Creek, Calif. (left). Schools, plants, office buildings, and commercial establishments all across the country are putting Plexiglas acrylic sheet to excellent use as safety window glazing. Shatter-resistant Plexiglas sheet drastically reduces breakage and the costs of replacement. Additional advantages of Plexiglas in window glazing are the control of solar heat and glare through the use of gray and bronze tints in the Solar Control Series.

Hilton Inn, Northampton, Mass. (upper right). As no other material can, Plexiglas acrylic plastic captures and controls daylight. Because of its light weight and strength, Plexiglas is a practical and graceful material to use in large dome enclosures. Heat and glare are controlled in such structures through the specification of one of the transparent gray or bronze colors in the Plexiglas Solar Control Series.

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(Continued from page 198)

and sterile) can be traced back to formal ideas first institutionalized at the Bauhaus five decades ago.

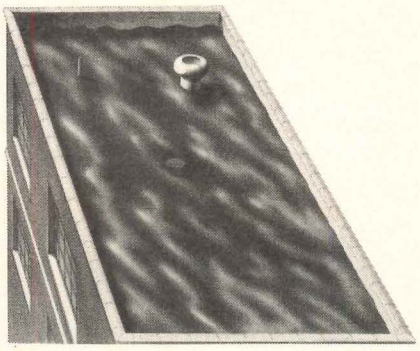
Therefore, it was appropriate for a major piece of scholarship on a subject of such importance to have been one of the more monumental publishing events of the late 1969 season. Indeed, before approaching its substance, it will be difficult for the potential reader to be unaware that this boxed book measures 14¾ x 10½ x 2⅜ inches, and weighs about 10½ pounds. The book itself is a physical monument.

This volume is an adaptation of the German edition that first appeared in 1962 as *Das Bauhaus: 1919–1933, Weimar, Dessau, Berlin.* The new English edition adds about 100 pages and 300 illustrations to the original neo-Bauhaus format, incorporating not only newly available facts and photographs, but also a useful supplement on Moholy-Nagy's perpetuation of the Bauhaus idea in Chicago after 1937.

The author is director of the Bauhaus-Archiv in Darmstadt, which was founded in 1960. The book should be understood as a first "general report" of the wealth that lies in that unique collection of verbal and visual documents he has been assembling. Such an elaborate presentation of source material is certainly an archivist's dream. But, if his purpose is clear enough, the question of who shall profit from it is less obvious. Unfortunately, it falls between the natural reaches of either a popular or a critical audience.

The material is divided in the following manner. First, a short introduction to the "Origin and History of the Bauhaus" is provided. In general, this is a modest, clear presentation of the major facts from a widely accepted perspective. But a few of the ideas are misleading in their oversimplification. For example, (page 5) "With the exception of Rietveld's constructivist chairs, which were later the stimulus for Breuer's first furniture designs, the Stijl influence contributed nothing essentially new to the Bauhaus." Actually, the role of de Stijl in general and van Doesburg in particular seems to have been considerably more important in the transition from the early intuitive mysticism of Itten to the later objective formalism of Moholy-Nagy.

(Continued on page 212)



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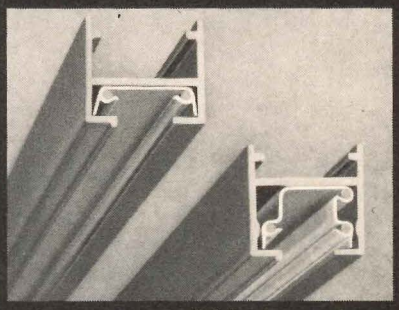
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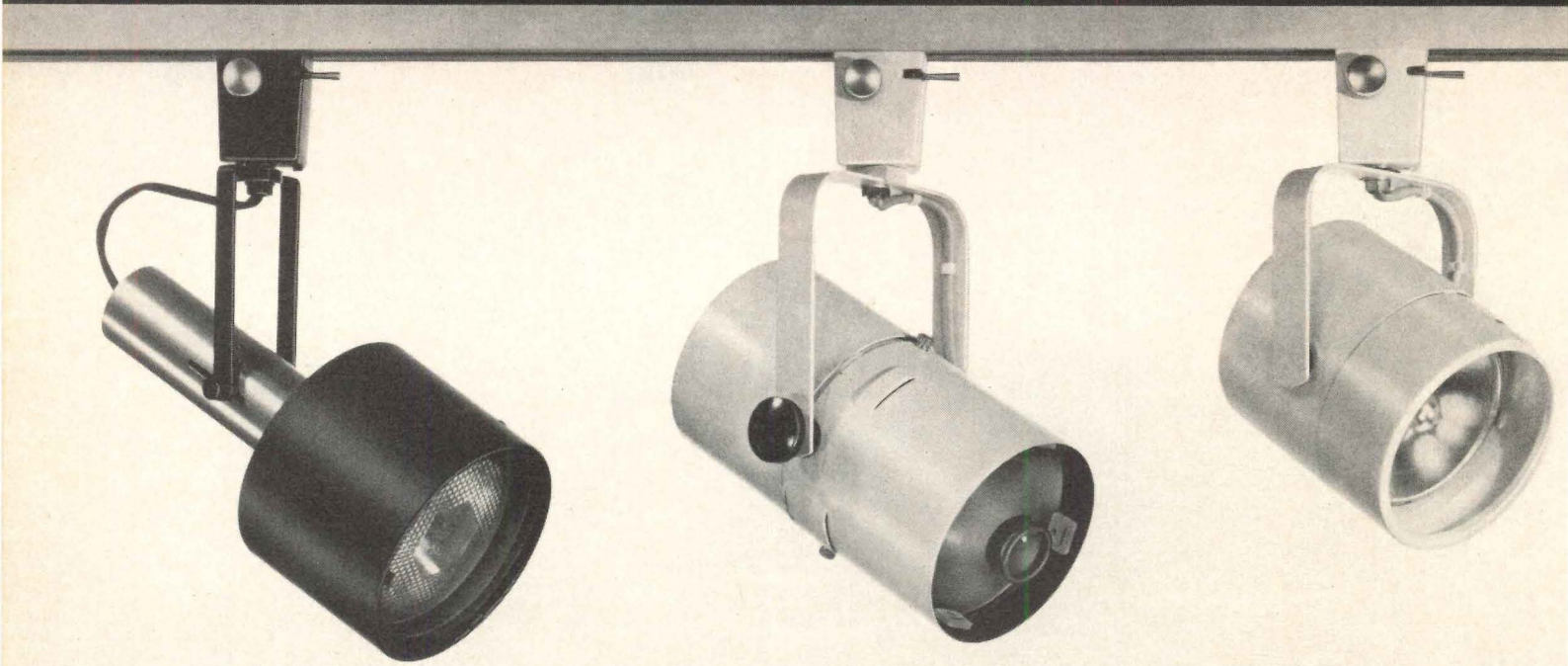
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(Continued from page 208)

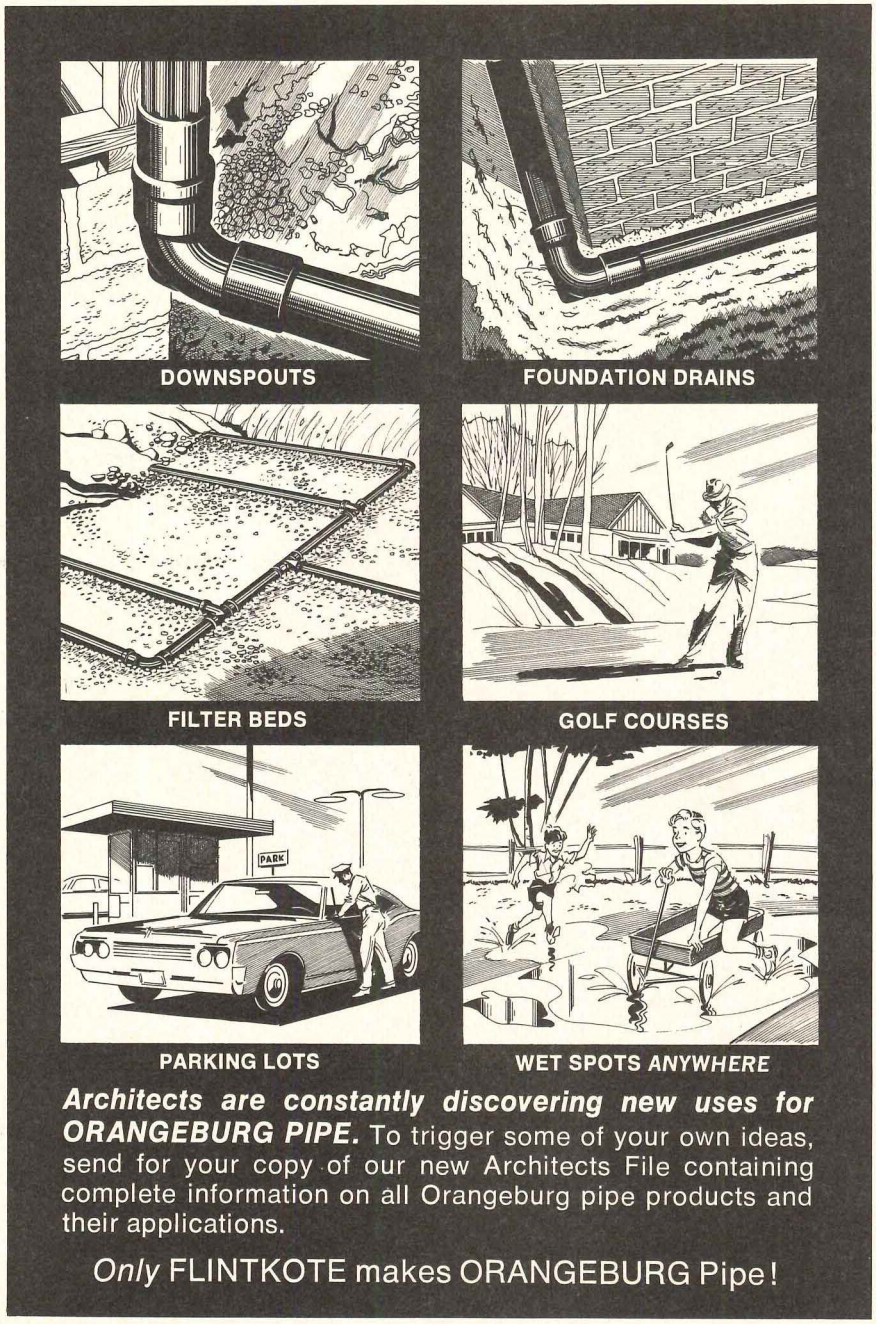
The remainder of the first third of the book is devoted to well annotated documents carefully selected to shed light on not only the programs, practices, and socio-political problems of the school in each city, but also the daily life, hopes, and fears of masters and students. These documents, many available for the first time in English, form the intellectual core of the book.

The final two-thirds of the book is given over to a plethora of pictures, about 800 of them, also divided by eras, and also well documented and annotated. In this section, the editor's powers of critical selection have not maintained a balance. The humanistic attitude that properly tempered the choice of the literary documents distorts the visual ones. All too often it is a person's portrait that is given a full page while his work is relegated to a smaller photograph. One finishes with the impression of having experienced a gallery in the hall of fame rather than a chapter in the history of art. A similar attitude underlies the presentation of a Roster of Students, recorded as carefully as the names of those who are entitled to pass through the gates of St. Peter. The fact that many of these students did work of such mediocre quality that their fame is due more to association than achievement is not seriously considered.

In general, there simply are too many photographs, or not enough, depending on what the aim of the effort has been. If the purpose was merely to suggest every facet of the Bauhaus, a more focused approach would have provided a more lasting impression — a sparkling crystallization rather than a misty miscellany. If the purpose was a thorough study, the effort would have been better spent on a series of photographic books, each comprehensive in itself for one particular division of interest, be it architecture or furniture, textiles or theater. As it stands, the attempt to adopt an "objective" point of view leaves the important figures under-represented and the unimportant work over-represented.

The same kind of unsatisfactory middle ground is seen again in the "back matter." The bibliography is lengthy, but not as complete as a volume of this size and type would lead one to expect. The index to the Bauhaus's own invaluable periodical is only partial, when a relatively simple computer print-out could have made it the ultimate index scholars really need.

Over-all, there is much more in this book than the average interested person would ever care about, and not nearly enough for the serious student. It is a monument to an awkward age in the history of disseminating information, and an unfortunate episode in the poundage of publishing. Two paperback volumes, for example, would have been more useful, and easy to carry. However, as a monument to the grandfather of today's schools of architecture and design, it is a warm and worthy appreciation. One can only wish that it were less of a worshipful object in itself so that every now and again one could wipe off the dust and pick it up off the coffee table.



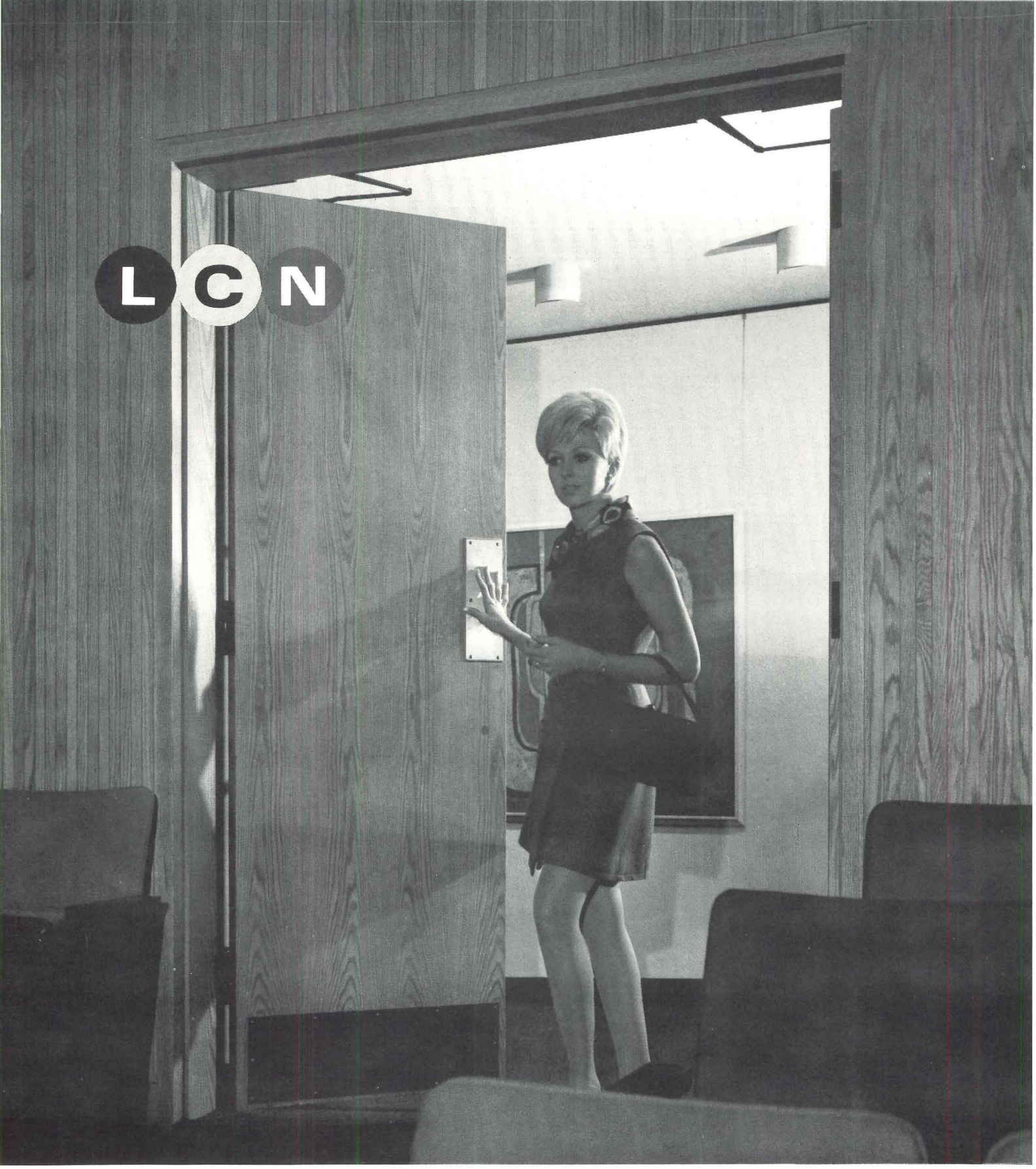
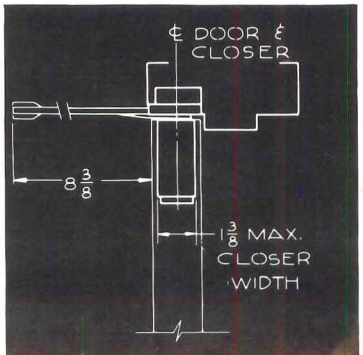


PHOTO: Memorial Art Gallery of the University of Rochester, Rochester, New York. Waasdorp Northrup and Kaelber, Architects, Rochester, New York.

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Architects for the Armstrong Rubber Building were Marcel Breuer and Robert F. Gatje. General contractor: The Dwight Building Co. Structural engineer: Paul Weidlinger. Mechanical engineer: Segner & Dalton/Consulting Engineers. Steel fabricator: The Standard Structural Steel Co.



Emphasizing the separate functions of headquarters and research, the office tower is suspended over the laboratories.

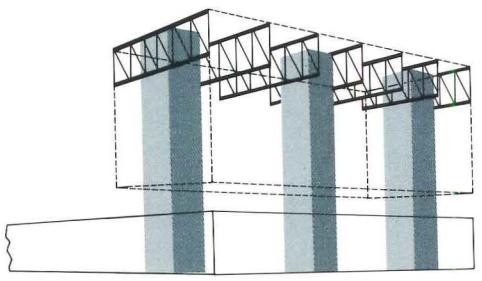


Diagram shows the cantilevered trusses and suspension system of the office tower.

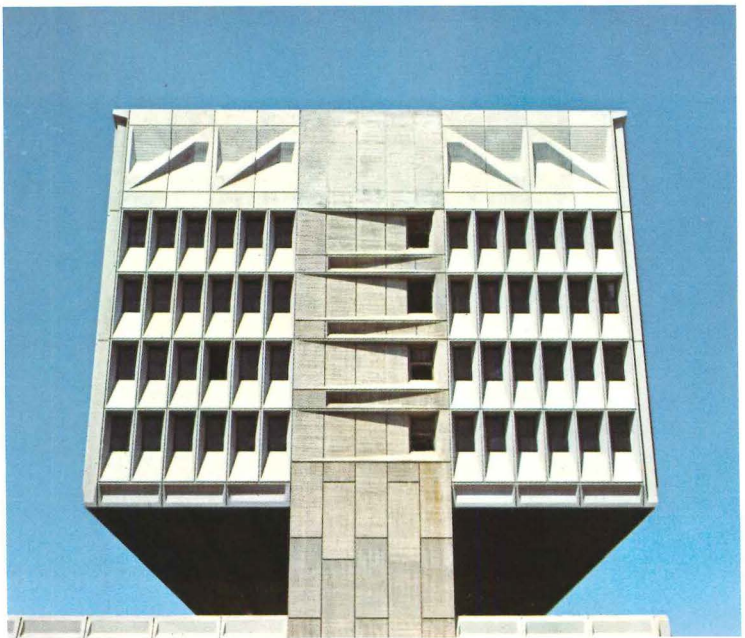
Four-story office tower suspended from overhead steel trusses

This is the new corporate headquarters and research and development laboratories of Armstrong Rubber Co. in New Haven, Connecticut. In order to emphasize the two separate functions of the building—research laboratories and executive offices—yet express their interdependence, the architect has hung the office tower from seven huge steel trusses over the two-story research and development wing.

The seven steel trusses from which the tower is suspended weigh about 50 tons each. From the end of each truss, a 14-WF steel column drops 52½ ft, the height of the four office floors. These hanging columns are held in place by single pins measuring 4½ in. in diameter and 19 in. in length. Thus, the four floors are suspended by 14 huge pins. The structural steel for the four floors is connected to the columns that support the trusses, and to the hanging columns as well. The steel is Bethlehem A36 structural shapes.

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PRODUCTS & LITERATURE

(Continued from page 65)



Steel Floor Joists

The American Iron and Steel Institute recently marketed a steel joist system aimed at the residential market. The system can be readily incorporated into traditional forms of floor joisting using a 14-gage 2½" x 7" steel beam floor joist. The steel joist is capable of 14' clear spans, and can be nailed easily with case hardened steel nails or a nailing gun. Photo shows the use of an adjustable steel jack stand to support long spans on houses without basements.
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With-it Wallcoverings

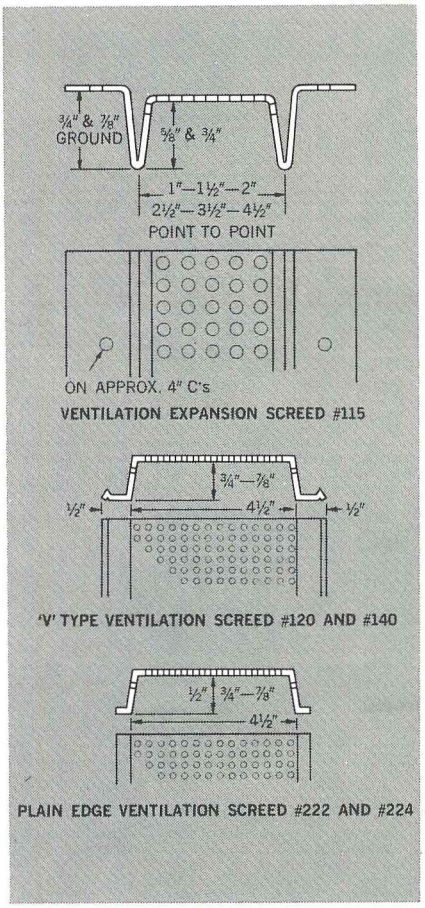
United-De Soto recently has introduced its all new Feminique Collection of Vinyl wallcoverings. The collection of contemporary wallcovering ranges from a pastoral montage to brightly-colored, alive-looking tigers. Other patterns include mushrooms, zinnias, and hearts.
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(More products on page 224)

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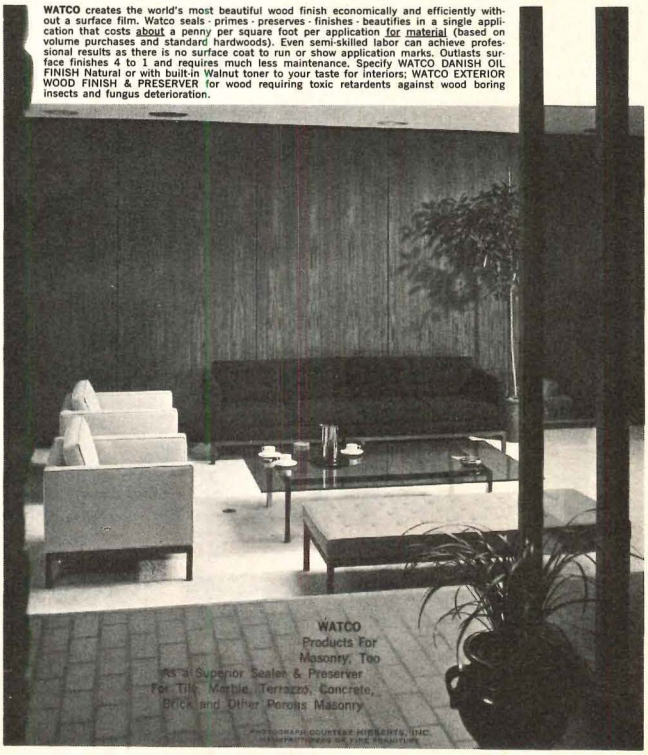
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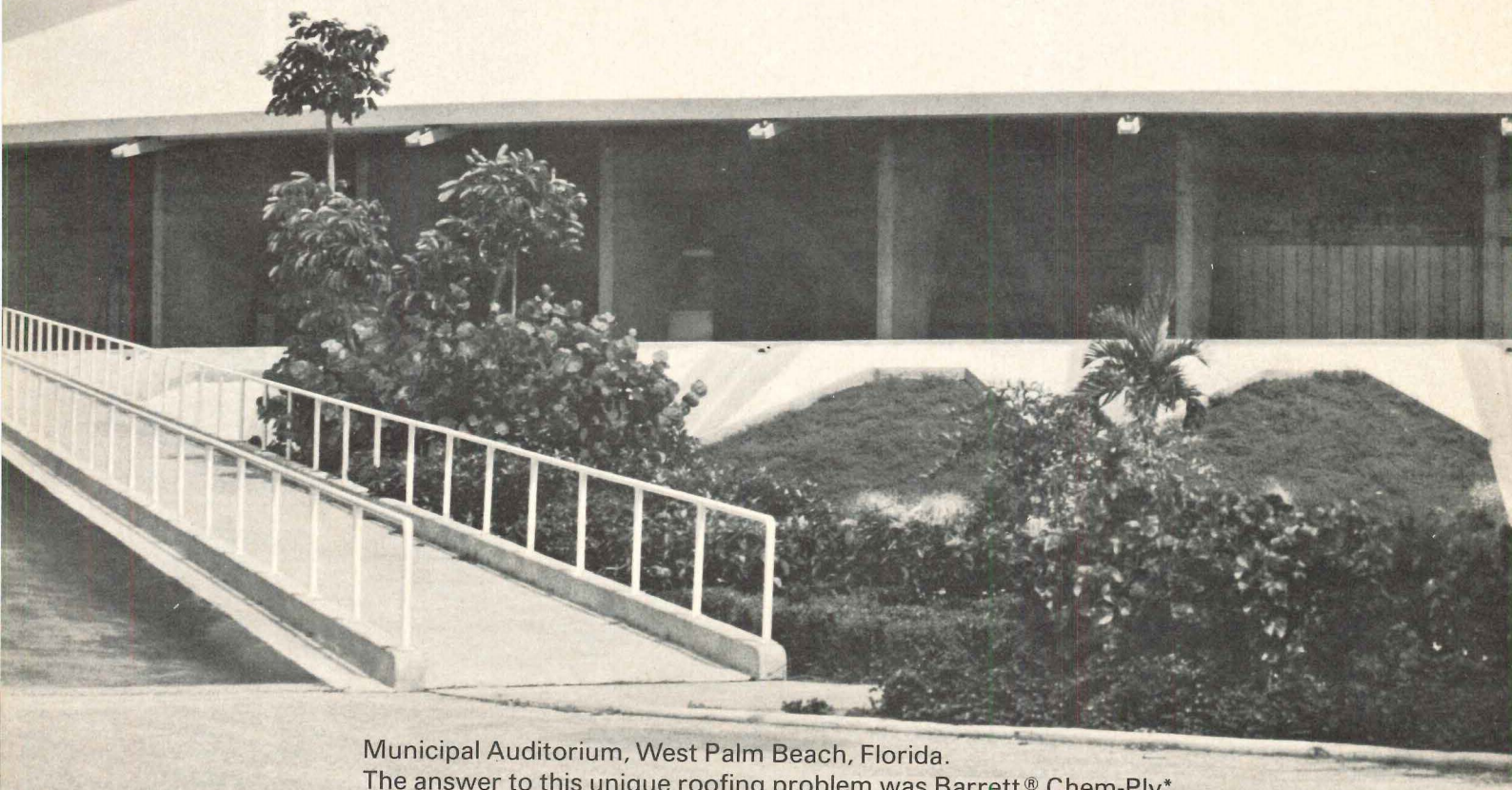
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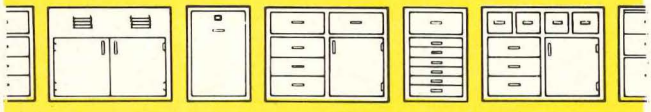

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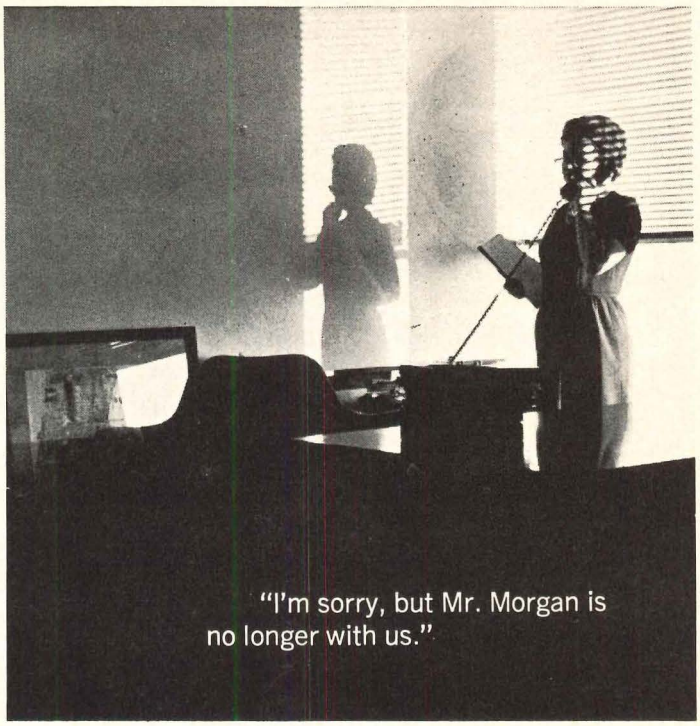


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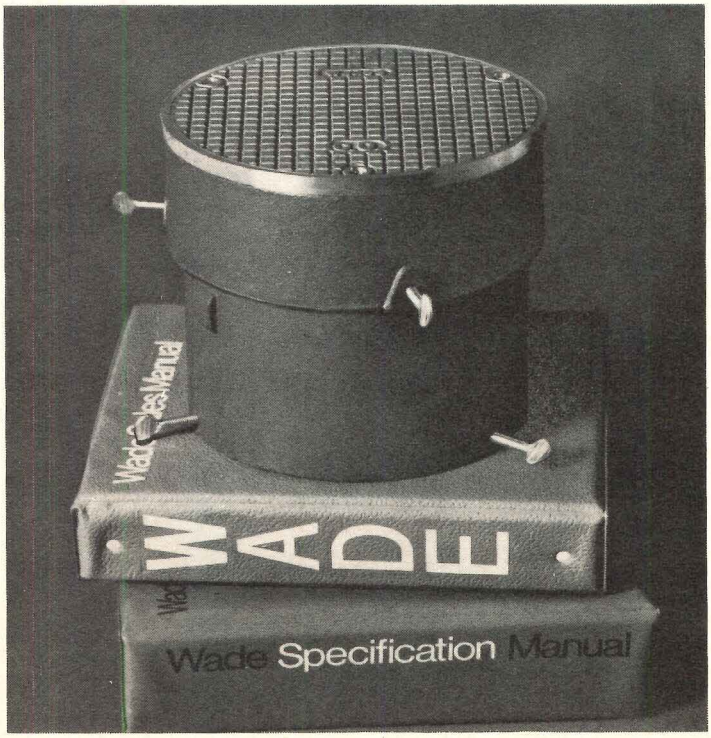
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PRODUCTS & LITERATURE

(Continued from page 216)



Porcelainized Murals

The Bettinger Corp., long known for their porcelainized steel panels has recently perfected a method for reproducing virtually anything as a porcelain enamel mural. The Massachusetts Transit Authority is using Bettinger Murals in the Boston subway system because of their durability and facility of maintenance. Murals can be almost any size and any color depending upon original artwork.
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Elephant Idea

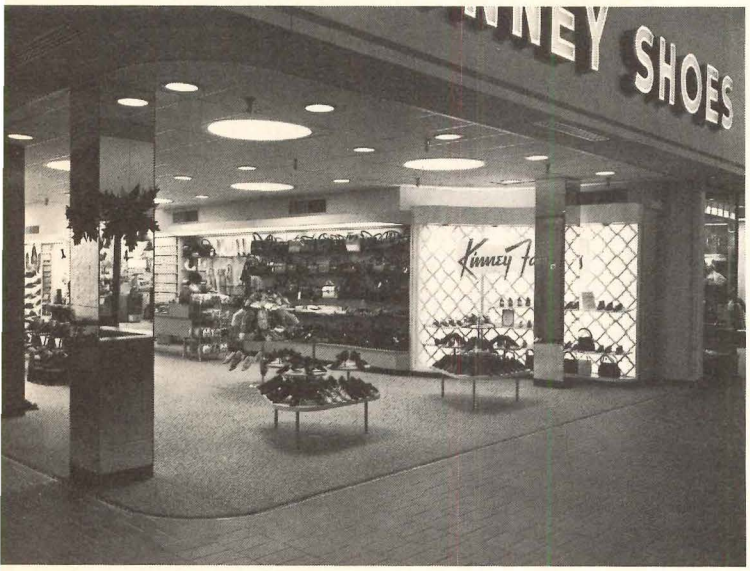
Furniture designer Harvey Probber is currently distributing two new chair ideas. The first, the Pachyderm Chair, is a massive Italian design of leather-covered cushiony foam with ebonized wood discs at the bases. The other is a cushion seating system which lends itself to many seating arrangements — a chair, a couch, just about anything to sit on.
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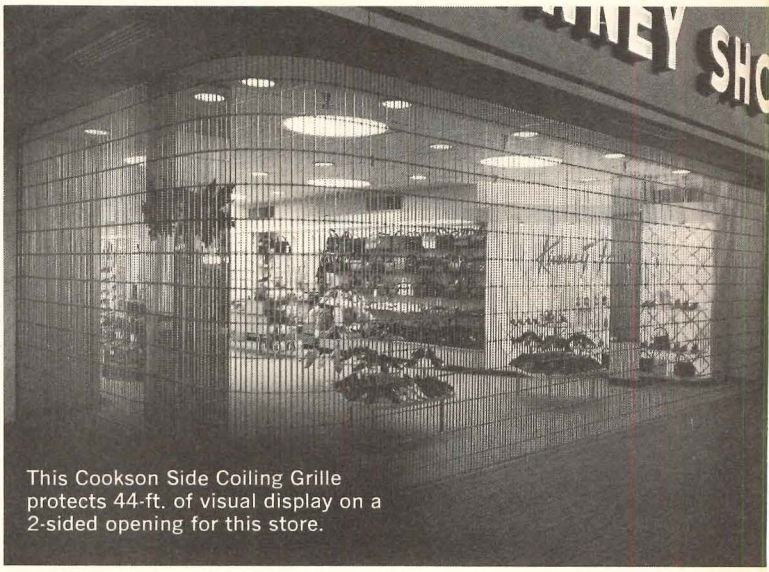
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The Architectural Research Corp. and Merry Companies, Inc. currently produce Ar-Lite insulated aggregate panels. Basically, a composite laminated panel consisting of a layer of ⅛" asbestos board, a ½" rigid foam insulation layer, and a layer of thermoset plastic and aggregate, the Ar-Lite panels are offered in one of the most complete selections of aggregate color and particle size. The Ar-Lite brochure contains technical data, photos of contemporary applications, and drafted details.
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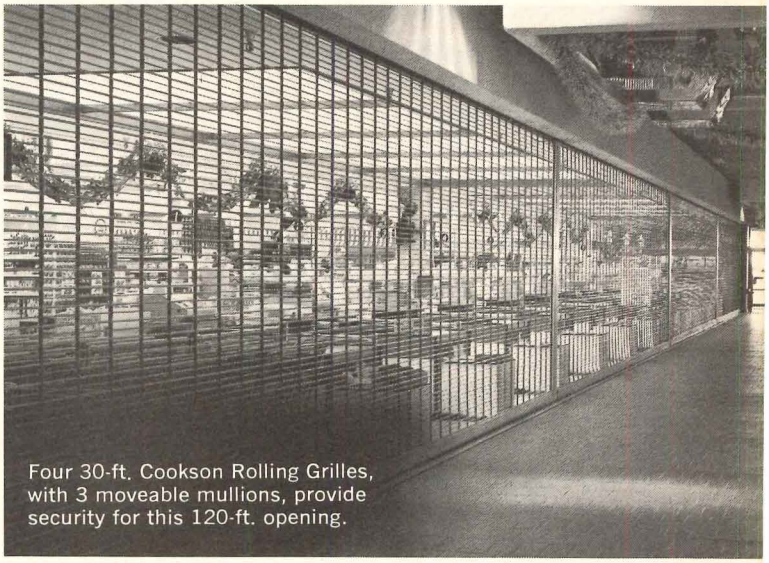
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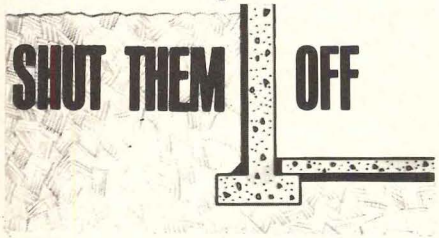
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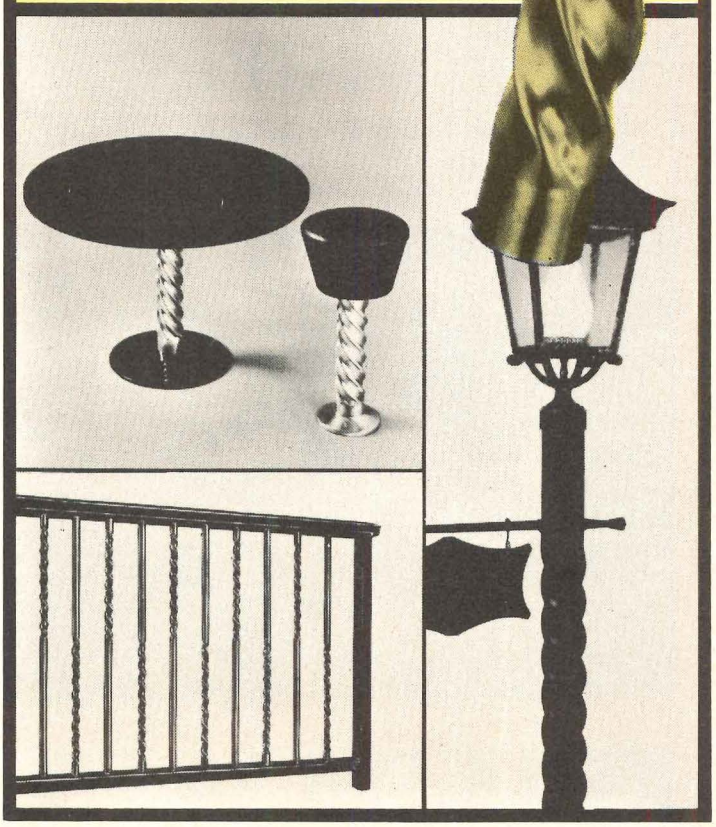
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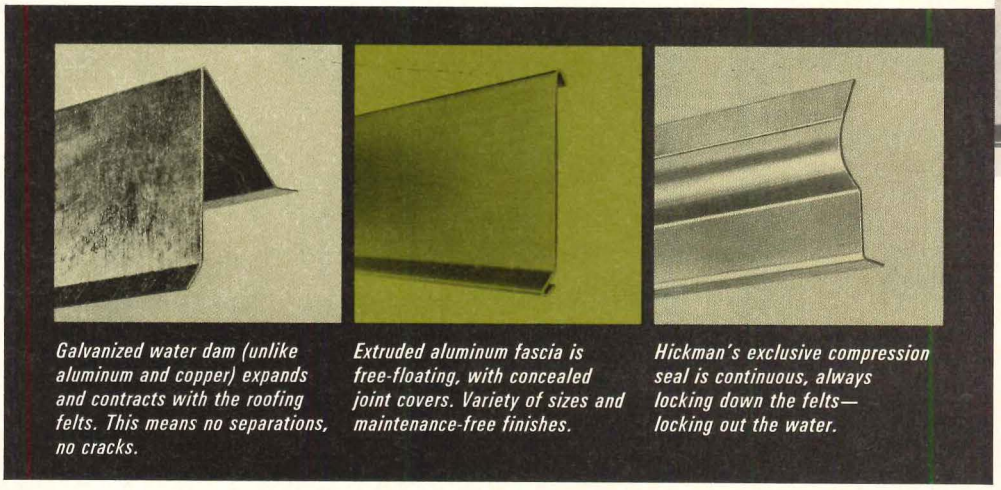
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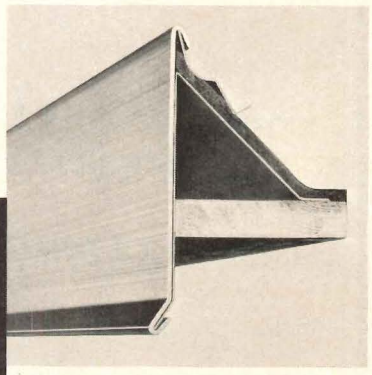
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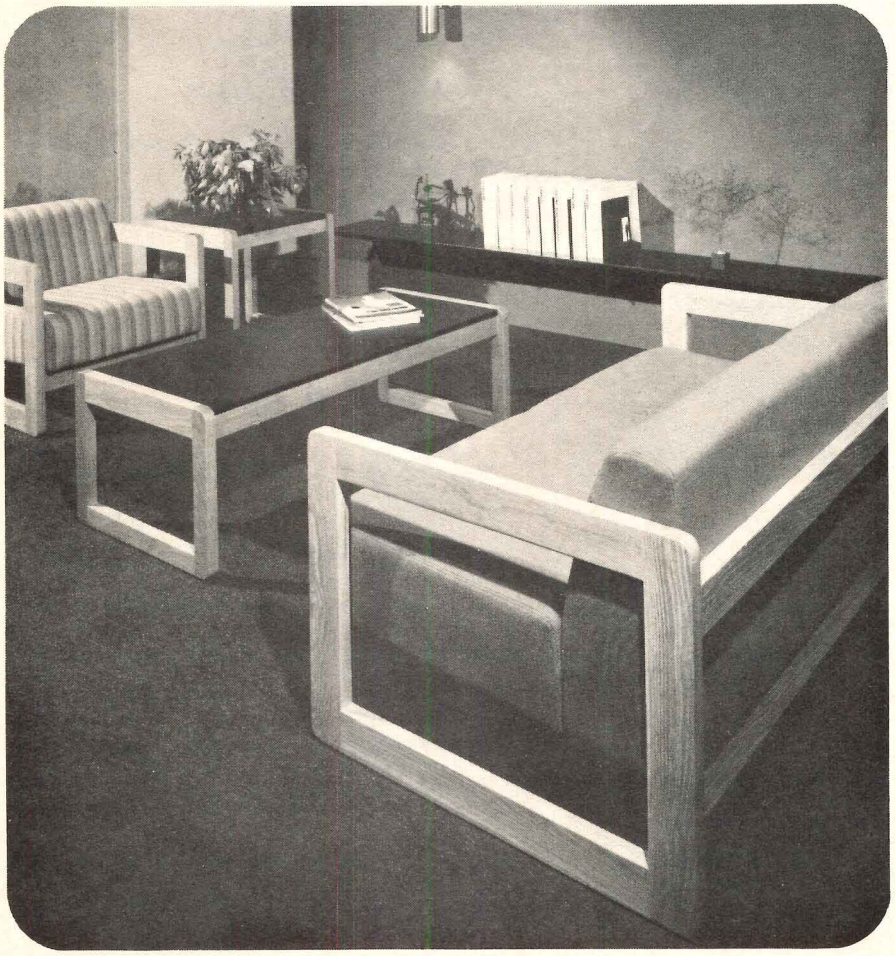
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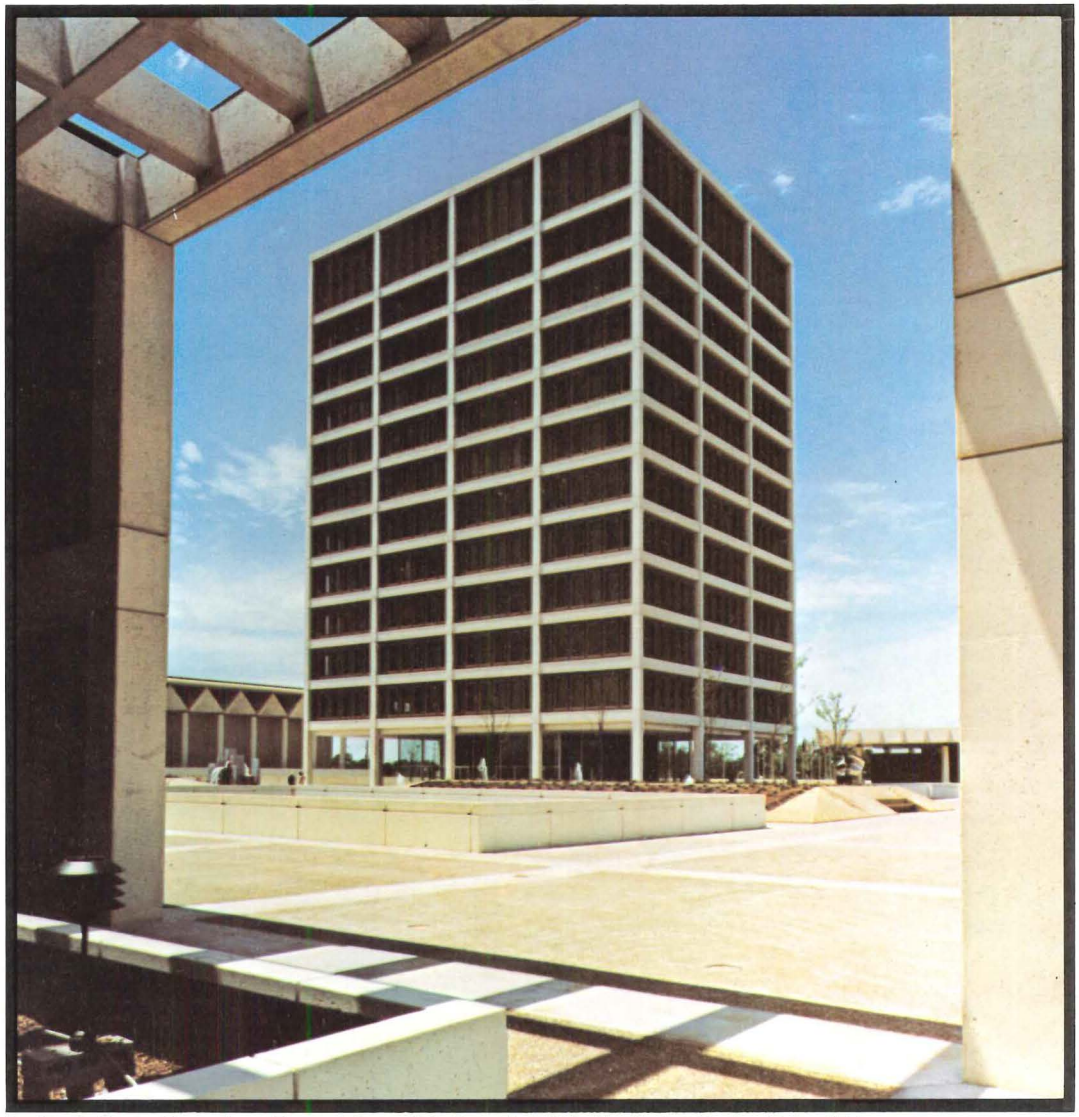
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Cast-in-place white concrete goes tall in Tulsa



Credits: Architects: Murray-Jones-Murray, Coleman-Ervin-Ragsdale & Whimside, Shultz & Chadsey, Tulsa, Oklahoma. **Concrete Consultant;** Architectural Concrete Consultants, Inc., Houston, Texas. **Precast Panels;** Harter Concrete Products, Inc., Oklahoma City, Oklahoma. **Cast-in-place concrete;** Bagby-Harris Concrete Co., Tulsa, Oklahoma. **General Contractor;** Manhattan Construction Co., Muskogee, Oklahoma.

Tulsa's sparkling new City Hall and Police Court complex represents a unique collaboration between architect, concrete consultant and contractor.

Design specifications called for an eleven story cast-in-place concrete post and lintel exposed construction—of subtle texture and warm white color. Trinity White, with its superior uniformity and whiteness, was combined with aggregates to produce the color tone desired. Specially fabricated fiberglass reinforced plastic forms were used in the casting process. Then, light sand blasting revealed the natural color of the aggregate—the only finishing required. Results: a graceful exterior that will retain its appearance, with little or no maintenance, for decades to come.

The precast panels consisted of 840 window units with glazing reglet cast-in. Erection took place at the rate of 4 floors per week.

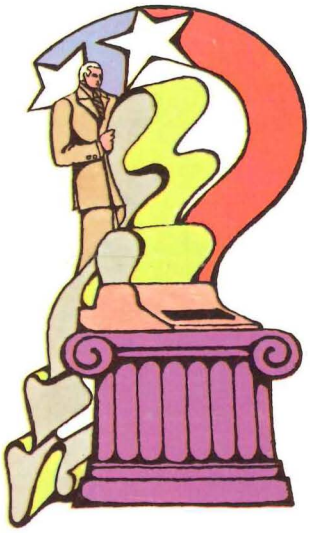
The effective use of pre-cast concrete panels coupled with cast-in-place white concrete that is clean and uniform, opens a whole new world of flexible architectural design possibilities. Tulsa's new cast-in-place City Hall is beautiful evidence.

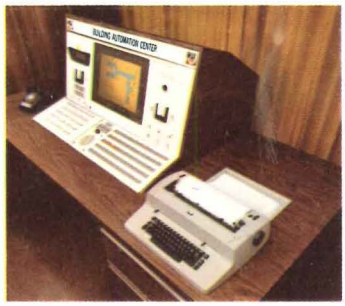
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